

MATERIALS TOWARD A MONOGRAPH OF THE GENUS VITEX. VI

Harold N. Moldenke

VITEX AGNUS-CASTUS L.

Additional literature: Kasapligil, Pl. Jordan 102. 1956.

Kasapligil records the vernacular names "bawshanih-ul-gar", "hash", "abu-shih", and "officinal chaste-tree" for this species from Transjordan, where he says it is also cultivated. In the wild in that country it grows in alluvial places, along streams, and in sandy valley bottoms. He says that it is used in baths as a treatment for rheumatism. He cites his nos. 1674, 2651, and 2910.

VITEX CALOTHYRSA Sandw.

Additional literature: Ducke & Black, Bol. Tecn. Inst. Agron. Norte 29: 25. 1954.

VITEX GAUMERI Greenm.

Steyermark describes this species as a tree 40 feet tall, with leaves grass-green above and gray-white beneath, found at altitudes of 125--150 meters.

Additional citations: GUATEMALA: Alta Verapaz: Steyermark 45312 (N).

VITEX GRANDIFOLIA Gürke

Chevalier admits that his V. lutea is very closely related to or is even perhaps conspecific with V. grandifolia, but he claims that V. lutea is a shrub rather than a tree, its leaflets are petiolulate, and the fruit is yellowish or yellow-orange "devenant ensuite noir pulpe mince couvrant un noyau très dur", not black when ripe. However, in my opinion none of these characters constitutes a valid or reliable difference.

VITEX HEMSLEYI Briq.

The vein and veinlet reticulation of the leaf-blades is abundant, very fine, mostly obscure or indiscernible above, plane or the larger parts subprominent beneath; inflorescence axillary, paniculate, 11--17 cm. long, 2--6.5 cm. wide, composed of 2--6 pairs of lateral cymes and a terminal one, the upper ones very small; peduncles slender, 4--7.7 cm. long, minutely and sparsely puberulent; rachis similar to the peduncles in color, texture, and puberulence; corolla varying from blue to violet or lilac, sometimes white.

The type of this species is Jurgensen 68, said to have come from Oaxaca, Mexico, and deposited in the Delessert Herbarium at Geneva. The Kew sheet is inscribed "most likely from N. Grenada", but the species is endemic to Mexico, and Jurgensen, as far as I am aware, never collected in Colombia. The type of V. capulin is Langlassé 994 from Cuesta del Peregrino, Michoacán,

Mexico; that of V. leucoxylon is Sessé, Mociffo, Castillo, & Maldonado 2185; that of V. oaxacana is Jurgensen 41 from Oaxaca; and that of Cornutia pentaphylla is Sessé, Mociffo, Castillo, & Maldonado 2571.

The species is said to grow on hills and sea-cliffs, at altitudes of from 400 to 800 meters, and has been collected in flower in March, April, and June. Common names for it are "capulin" and "capulin blanco". It has been confused by herbarium workers with the genus Citharexylum, and the Brussels specimen of Galeotti 527 was actually identified as "Myrsine sp."

Citations: MEXICO: Guerrero: O. M. Clark 7188 (N); Langlassé 133 (B, Cb, G, K, P, W--385742), 1013 (B, Cb, Cb, G, K, Me, Me, N, N, P); Schultze Jena 512 (B). Michoacán: Hinton 13789 (Au, Ld, N, N); Langlassé 994 (B, Cb, G, K, Me, Me, N--photo, P, W--386318, Z--photo). Oaxaca: Conzatti, Reko, & Makrinus 3155 (E--879019); Galeotti 527 (Br, P), 795L (B, Br, F--634356, G, N, V, W--572383); Jurgensen 41 (Cb, F--870903), 68 [Macbride photos 24702] (Cb--type, F--869448--fragment of type, F--770895--photo of type, K--isotype, Kr--photo of type, N--photo of type, N--photo of type, N--photo of isotype, Z--photo of type, Z--photo of isotype). State undetermined: Herb. Pavon s.n. [Nueva España] (X), s.n. ["Peruvia"] (X); Sessé, Mociffo, Castillo, & Maldonado 2185 (F--847005, Q), 2571 (F--847058, N--photo, Q, Z--photo).

VITEX HENRYI Moldenke, Phytologia 3: 488--489. 1951.

Tree, 6--12 m. tall; branchlets slender, tetra onal, often somewhat compressed, minutely puberulent, brownish; nodes not plainly annulate; uppermost internodes about 5 cm. long; leaves decussate-opposite, 3--5-foliolate; petioles slender, 5--11.5 cm. long, very minutely puberulent; petiolules slender, the outermost 2--3 mm. long, the inner ones to 3.3 cm. long, very minutely puberulent or subglabrescent in age, flattened above; leaflet-blades firmly chartaceous, brunnescent in drying, elliptic or oblanceolate-obovate, 7--23 cm. long, 2.5--3.5 cm. wide, long-acuminate or caudate at the apex, entire, acute and sometimes slightly asymmetric at the base, practically glabrous on both surfaces; midrib very slightly prominulous above or plane, prominent beneath; secondaries slender, 9--12 per side, arcuate-ascending, plane or very slightly subimpressed above, sharply prominent beneath, indistinctly anastomosing at the margins; veinlet reticulation rather abundant, slightly subimpressed above, prominulous beneath; inflorescence terminal, paniculate, 15--35 cm. long, 7--19 cm. wide, composed of 5--9 many-flowered branches, the lowermost pair axillary in the axils of the uppermost leaves; rachis and inflorescence-branches tetragonal, usually sulcate, minutely but densely puberulent, nigrescent; pedicels very slender, 1--3 mm. long, densely puberulent; bracts, bractlets, and prophylla absent or caducous; calyx campanulate, 2--3 mm. long and wide, densely puberulent, its rim subtruncate, minutely 5-apiculate; corolla hypocrateriform, bluish-white, its

tube 4--5 mm. long, densely short-pubescent outside with yellowish hairs, its limb about 6 mm. wide, the lobes blunt, densely yellowish short-pubescent on the back; stamens short-exserted; fruiting-calyx incrassate, patelliform, 6--7 mm. wide, 5-lobed, striate-veined, lightly and obscurely puberulent on the outside, the lobes 1--1.5 mm. long, rounded; fruit drupaceous, fleshy, subglobose, to about 7 mm. long and wide when dried, wrinkled, glabrous.

The type of this species was collected by Augustin Henry (no. 12633) at Szemeo, Yunnan, China, before the year 1901, and is deposited in the Britton Herbarium at the New York Botanical Garden. The species has been collected in anthesis in June, and has been confused in the past with *V. quinata* (Lour.) F. N. Will.

Citations: CHINA: Yunnan: Henry 9787 (N), 12633 (N--type, N--isotype), 12638a (N).

VITEX HEPTAPHYLLA A. L. Juss., Ann. Mus. Hist. Nat. Paris 7: 77. 1806.

Synonymy: *Vitex arborea* Brown ex A. L. Juss., Ann. Mus. Hist. Nat. Paris 7: 77. 1806 [not *V. arborea* Roxb., 1814, nor Fischer, 1829, nor Desf., 1847, nor Bréon, 1955]. *Vitex balbisii* Spreng., Syst. Veg. 2: 756. 1825. *Vitex lucida* Moldenke, Phytologia 1: 102--103. 1934.

Literature: A. L. Juss., Ann. Mus. Hist. Nat. Paris 7: 77. 1806; Spreng., Syst. Veg. 2: 756. 1825; Schau. in A. DC., Prodr. 11: 695. 1847; Griseb., Pl. Wright. 2: 530. 1862; Griseb., Cat. Pl. Cub. 113. 1866; Jacks., Ind. Kew. 2: 1213. 1895; Moldenke, Phytologia 1: 102--103. 1934; Moldenke, Alph. List Common Names 6, 14, 21, & 24. 1939; Moldenke, Geogr. Distrib. Avicenn. 6 & 7. 1939; Moldenke, Prelim. Alph. List Invalid Names 50 & 51. 1940; Moldenke, Alph. List Invalid Names 53 & 54. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 25, 26, & 102. 1942; Moldenke, Phytologia 2: 118. 1944; Moldenke, Alph. List Invalid Names Suppl. 1: 28. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 49. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 45, 48, & 200. 1949; Roig, Dicc. Bot. 2: 1115. 1953.

Shrub or tree, to 17 m. tall; branchlets medium-slender or slender, woody, obtusely or very obtusely tetragonal or subterete, gray, with small pith, more or less densely puberulent or short-pubescent with yellowish hairs at the apex when young, becoming less so or even subglabrate in age; leaf-scars rather large on old wood; nodes not annulate; principal internodes 1--3.5 cm. long; leaves decussate-opposite, 3--7-foliolate; petioles slender, 1.5--6.5 cm. long, convex beneath, conspicuously flattened and canaliculate above, not ampliate at the apex, not conspicuously ampliate at the base, rather densely puberulent with very short cinereous or yellowish hairs or yellow-strigillose; leaflets subequal in size or when 3 the central one somewhat larger, or when 5 or 7 the two lowermost more or less reduced, sometimes the central one largest, the 2 or 4 lateral ones medium-sized, and the 2 basal ones smallest, all decidedly petiolulate or the lowermost subsessile; leaflet-blades firmly thick-

chartaceous or subcoriaceous, dark-green above, somewhat lighter beneath, very shiny on both surfaces, the central one elliptic or subobovate-elliptic, varying to oblanceolate (rarely ovate on stunted leaves), 5--17 cm. long, 3--5.7 cm. wide, rounded or very shortly subacuminate or acute at the apex, varying to obtuse and emarginate or retuse on the smallest leaflets, varying from rounded to acute or subcuneate at the base, often slightly inequilateral, entire, often somewhat undulate or subrepand (or even crimped) at the margins, very sparsely and obscurely granular-pulverulent on both surfaces, soon becoming glabrous except for the strigillose midrib; midrib slender, flat or very obscurely prominent in a shallow channel above, strong and conspicuously prominent beneath, mostly sparsely puberulent or strigillose; secondaries slender, 6--17 per side, usually rather distant, spreading at almost right angles to the midrib, slightly ascending, usually hardly arcuate, mostly furcate and indistinctly confluent quite some distance from the margins, slightly prominulous on both surfaces; vein and veinlet reticulation abundant, very fine, slightly prominulous on both surfaces; petiolules slender, 1--13 mm. long, more or less puberulent or strigillose, deeply canaliculate or submargined, longest on the central leaflet, shortest on the basal leaflets; inflorescence axillary, opposite, paniculate or thyrsoid, 7--15 cm. long, 2--3.5 cm. wide, composed of 2--6 pairs of long-stalked loosely 3-flowered cymes and a terminal one; peduncles 3--6 cm. long, very slender, sparsely puberulent or strigillose; rachis very slender, sparsely puberulent or strigillose; sympodia mostly elongate, the lowermost to 3 cm. long; pedicels very slender or filiform, 1--11 mm. long, glabrate or sparsely strigillose, the lateral ones in each cyme usually much longer than the central one and widely divaricate; bracts few, usually a pair subtending the lowest pair of cymes, simple, stipitate, elliptic, 9--13 mm. long, 3--5 mm. wide, similar to the leaflets in color and texture; bractlets few, linear, a pair subtending the upper cymes, 2--5 mm. long; prophylla minute, setaceous, 1 mm. long or less; calyx cupuliform, zygomorphic, about 1.9 mm. long and 2 mm. wide, glabrous, its margin more or less bilabiate, 5-dentate, the teeth small, acuminate, 3 sinuses shallow and 2 sinuses deep; corolla hypocrateriform, varying from blue to violet or deep-violet, minutely puberulent outside, densely pilose within, its tube infundibular, about 4.1 mm. long, straight, about 1.5 mm. wide at the glabrous base, conspicuously ampliate and 3.6 mm. wide at the apex, its limb 5-parted, four of the lobes ovate, small, about 2.3 mm. long and 1.8 mm. wide, acute at the apex, the fifth lobe very large, broadly spatulate, venose, about 5.2 mm. long, about 2.8 mm. wide at the base and to 1.5 mm. of its length, conspicuously dilated toward the apex to 4.9 mm., abruptly short-acuminate at the apex; stamens 4, didynamous, about 5.9 mm. long, inserted almost at the base of the corolla-tube; filaments slender, pilose, flattened and ampliate at the base and more densely and longer-pilose there; anthers obcordate, about 0.8 mm. long and wide; pistil exserted; style about 5.2 mm. long, glab-

rous, bifid at the apex, the stigmatiferous branches about 0.5 mm. long, spreading; ovary subglobose, about 1 mm. long and wide, subglabrous; fruiting-calyx patelliform or campanulate, indurate, deeply split and often conspicuously bilabiate, about 2.5 mm. long and 5--6 mm. wide, sparsely strigillose-puberulent or subglabrate, its margin scarious, entire or subentire; fruit subglobose, yellow, lightly 4-sulcate in drying.

The species is related to V. umbrosa Sw., of Jamaica, with which it has been abundantly confused in the past. Grisebach, for instance, in the reference cited above, unites it with the Jamaican species. The latter, however, differs in its much larger and more acute leaflets, its much longer and stronger petioles and petiolules, the former being prominently ampliate and disk-shaped at the apex, its large inflorescences, longer peduncles, puberulent calyx, and many other characters. Vitex divaricata Sw. is at once distinguished by its conspicuously divaricate inflorescences.

The original description of Vitex balbisii reads "Foliis ternatis. V. foliolis obovato-ellipticis obtusis utrinque glaberrimis subcoriaceis subtus discoloribus, racemis axillaribus subcompositis. Hispaniola. Bertero". In spite of some discrepancies in this description, I think that the name applies to this species. I have seen the type specimen and it matches typical material of the species perfectly. My name, V. lucida, therefore, based on Valeur 630, with the type deposited in the Britton Herbarium at the New York Botanical Garden, must be reduced to synonymy. I have seen also what purports to be the type specimen of Vitex heptaphylla in the Paris herbarium and this matches Bertero's type well. If Jussieu's plant is really conspecific with ours, as seems to be the case, then his name must take priority over that of Bertero. His description reads as follows: "Vitex heptaphylla. Arbuscula? folia digitata septenata, petiolo communi sesquipollicari, petiolulis semi-pollicaribus; foliola ovato-lanceolata coriacea integra glabra interdum pauciora quam septem. Pedunculi axillares, petiolis duplo longiores, trichotome paniculati multiflori, floribus parvis. Corolla subvillosa tubulosa quinquelobata, calyce quinquedentato duplo longior. Fructus ignotus. Misit olim Desportes ex Insula Dominica ubi dicitur bois de savane. An eadem cum V. arborea Brown, quae tamen pentaphylla dicitur?" Various writers have in the past excluded Jussieu's plant from the genus Vitex and have stated that it belongs in the Bignoniaceae. In my Prelim. Alph. List Invalid Names (1940) and Alph. List Invalid Names (1942) I followed this disposition of the name. After seeing the Paris specimen, however, I feel that it is actually conspecific with Vitex balbisii. The "Vitex pentaphylla" referred to by Jussieu is probably that of Sessé & Mociño or that of Pavon, both of which are synonyms of V. pyramidata B. L. Robinson, rather than that of Lambert, which is the Asiatic V. peduncularis Wall.

Specimens of the species under discussion have been misiden-

tified in herbaria as Cornutia. The plant has been collected in open pinelands, semi-arid pine regions, siliceous ground, and on hillsides, from 200 to 700 meters altitude, flowering in January, May, and June, and fruiting in June, July, and August. Common names recorded for it in Cuba are "malave" and "penda", in Haiti "bois de savane", "bois des savannes", and "gri-gri", and in the Dominican Republic "mata becerro" and "palo Perrito".

Citations: CUBA: Oriente: Acuña & López Figueiras 5830 (Z); Alain, Clément, & Chrysogone A.1046 (N); Clément 3585 (Ha, N), 4397 (Ha, N); Clément & Alain 3906 (Ha); Ekman 4344b (N, N--photo, S, Z--photo); León 11801 (Ha, N); León & Clément 23080 (N); Smith 582 (Es); C. Wright 1355 [Jan.--Jul. 1859] (B, G, K), 1355 [1860] (Br, Cb, Cb, D--611965, E--116113, N, Os, P, V, X). HISPANIOLA: Dominican Republic: Bertero s.n. (B, N--photo, Z--photo); Ekman H.11292 (B, N, S), H.12643 (B, F--339509, S); Prenleoup 430 (B), 435 (B); Rob. Schomburgk 133* (B), 138 (B, B, Em, K), s.n. [1853] (P); Valeur 630 (A, Cb, Cb, Cp, E--1027717, F--724231, K, K, La, Li, N), 695 (A, E--1026221, F--721496, K, K, Mi, N, S), 936 (K, N). Haiti: Buch 620 (B); Desportes s.n. [Herb. Jussieu 5058] (N--photo of type, P--type, Z--photo of type); Ekman H.3988 (B, N, S, W--1304503).

VITEX HIRSUTISSIMA J. G. Baker, Kew Bull. 1892: 198. 1892.

Literature: J. G. Baker, Kew Bull. 1892: 198. 1892; Durand, Ind. Kew. Suppl. 1: 457. 1906; Pieper in Engl., Bot. Jahrb., 62, Beibl. 141 ["142"]: 79 & 82, pl. 10. 1928; Worsdell, Ind. Lond. Suppl. 2: 500. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 53 & 103 (1942) and [ed. 2], 123 & 201. 1949.

Illustrations: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: pl. 10. 1928.

Tall straight slender shrub, 2--4 m. tall, simple and unbranched, apparently leafless except at the apex; leaves apparently 3, 4, or more, borne at the apex of the stem, very large; petioles very stout, 10--50 cm. long, deeply canaliculate above, densely hirsute with fulvous hairs to 5 mm. long standing at right angles to the petiole, soon brushing off; leaflets 5, the two lowermost sometimes much smaller, the central one obovate, 23--70 cm. long, 9.5--25 cm. wide, firmly chartaceous, short-acuminate at the apex, entire, acute at the sessile base, more or less scattered-hirsute on both surfaces with fulvous-brownish hairs, more densely and permanently so beneath, especially along the larger venation; midrib very stout, subimpressed above, very thick-prominent beneath; secondaries slender, 5--12 per side, ascending, slightly arcuate, impressed above, prominent beneath; veinlet reticulation very abundant, at least the larger parts and so etimes all parts impressed above, very prominent beneath, imparting a bullate appearance to the blades; inflorescence apparently cauliflorous, cymose but densely fasciculate, apparently often borne in the axils of large foliaceous bracts which are firmly chartaceous, ovate, 8.5--19 cm. long, 4.5--8 cm. wide, acute or rounded at the apex, entire, cordate at the base, borne

on densely spreading-hirsute stout stalks to 1.5 cm. long, hirsute on both surfaces like the leaflets; peduncles slender, to about 1.5 cm. long, they and the many cyme-branches very densely spreading-hirsute with stiff divergent fulvous hairs 2--3 mm. long; bractlets numerous, linear, 10--15 mm. long, densely hirsute; calyx campanulate, herbaceous, its tube 5--7 mm. long and wide, spreading-hirsute, its rim 5-apiculate, the apiculations linear, about 5 mm. long, densely fulvous-hirsute; corolla-tube cylindric, about 12 mm. long, abruptly ampliate above, densely spreading-hirsute above the calyx, the limb very irregular, the largest lip about 3 mm. long, erect, the lateral lobes half as long, all densely hirsute on the back; stamens and pistil exerted from the corolla-tube; fruiting-calyx not much changed, slightly enlarged; fruit not known.

The species is a member of the Section Digitatae Pieper, and the type was collected by Richard Baron (no. 6585) somewhere in northern Madagascar in or before January, 1892, and is deposited in the herbarium of the Royal Botanic Gardens at Kew. The "Index Kewensis" gives page "108" in error for the original publication.

Citations: MADAGASCAR: Baron 6585 (K--type, N--isotype, N--photo of type, P--isotype, Z--photo of type); Perrier de la Bâthie 19052 (N, P, P).

VITEEX HOCKII DeWild. in Fedde, Repert. 13: 143. 1914.

Literature: DeWild. in Fedde, Repert. 13: 143. 1914; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 43, 61, & 82. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49, 51, & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 64. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 115, 119, & 201. 1949; Mullenders, Webbia 11: 509. 1955.

Pieper states that this species forms a connecting link between V. grisea J. G. Baker [V. huillensis Hiern] and V. madiensis Oliv., from which it may be distinguished by its narrower leaflets and by the more prominent leaf-nervation. He cites Hock s.n. from Manika, in Upper Katanga, Belgian Congo, and Baum 229 from Kuelleis and Wellmann 1529 from Quiaka in Angola.

The species has been collected in anthesis in October and has been confused in herbaria with V. madiensis var. milanjiensis (Britten) Pieper and "Clerodendron sp." The Eredo 4228 cited below is a mixture with V. payos var. glabrescens (Pieper) Moldenke. Common names recorded for the species are "dihodi", "kafutu-futu", "kafutufutu", and "tschikotomishi".

Citations: BELGIAN CONGO: Eredo 4228, in part (Br); Gillardin 139 (Br, Br, Br); Herman 2326 (Br, Br, Br); Mullenders 983 (Br, N); Overlaet 1265 (Br, Br, N--photo, Z--photo); Quarré 1333 (Br), 1928 (Br), 3001 (Br, Br, Br, Br, Br), 5399 (Br), 6079 (Br), 7219 (Br, N), 7425 (Br, Br, N); RAPP. Salésiens S.629 (Br); Vanderyst 25694 (Br).

VITEEX HOLOADENON Dop, Bull. Soc. Hist. Nat. Toulouse 57: 204--205. 1928.

Literature: Dop, Bull. Soc. Hist. Nat. Toulouse 57: 204--205. 1928; Hill, Ind. Kew. Suppl. 9: 297. 1938; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 59 & 103 (1942) and [ed. 2], 137 & 201. 1949.

Tree (?); branches subquadrangular, puberulent and very glanduliferous; bark becoming brown and lenticellate; leaves 1-foliolate; petioles 6--12 mm. long, puberulent, glandulose; leaflet-blades ovate or ovate-oblong, 6--12 cm. long, 2--4 cm. wide, acute or acuminate at the apex, rounded at the base, chartaceous, entire, glabrous on both surfaces, densely white-glandulose above and densely yellow-glandulose beneath; secondaries 10--16, recurved at the margins; vein and veinlet reticulation conspicuous; panicle terminal, lax, puberulent, very abundantly glandulose, somewhat foliose at the base; cymes dichotomous, divaricate, their stalks 6--7 mm. long; bracts and bractlets very small, linear, glandulose; pedicels about 3 mm. long; flowers about 6 mm. long; calyx campanulate, about 2 mm. long, densely yellow-glandulose outside, its rim subtruncate, with 5 short obtuse lobes; corolla densely yellow-glandulose except for the base outside, its tube villous at the insertion of the stamens and in the throat, the upper lip with two short lobes, glabrous within, the lower lip with the middle lobe larger than the lateral ones, slightly villous at the base within; stamens scarcely exerted; ovary glabrous, glandulose at the apex; style equalling the stamens in length; stigma 2-lobed; fruit drupaceous, obconic, black, about 10 mm. long, 4 mm. wide at the apex, surrounded by the often bilabiate fruiting-calyx.

The species is based on Pierre 1218 and Thorel 2028 from Cambodia.

VITEX HOLOCALYX J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 322--323. 1900.

Synonymy: Vitex madiensis var. parvifolia Hiern, Cat. Afr. Pl. Welw. 4: 834. 1900.

Literature: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 322--323. 1900; Hiern, Cat. Afr. Pl. Welw. 4: 834. 1900; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 43, 64, 32, & 83. 1928; Moldenke, Alph. List Invalid Names 54. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 51 & 103 (1942) and [ed. 2], 119 & 201. 1949.

Shrub, 2--2.7 m. tall; branchlets densely pubescent; leaves 1- or 3-foliolate; petioles 5--7.5 cm. long; leaflet-blades subcoriaceous, obscurely pubescent above when mature, finely pubescent throughout beneath, suborbicular (on 1-foliolate leaves) or obovate-cuneate (on 3-foliolate leaves), entire or crenate, the central one 5--7.5 cm. long and 2.5--3.7 cm. wide; cymes axillary, lax, long-pedunculate; calyx campanulate, nearly 3 mm. long, densely pubescent, entire; corolla small, densely hairy outside; fruit not known.

The type of this species is Welwitsch 5636 from the province of Golungo Alto, Angola. Pieper refers to this collection under V. golungensis, but apparently in error for no. "5635". Under V.

holocalyx he indicates that he was not able to see any material of the type collection and was not able to distinguish the species in his key from V. madiensis Oliv., V. doniana Sweet, and V. golungensis J. G. Baker. He states that Hiern's disposition of it as a variety of V. madiensis is probably more correct. It is known only from the type collection.

VITEX HORNEI Hemsl. in Hemsl. & Turrill, Journ. Bot. 55: 285--286. 1917.

Literature: J. G. Baker, Fl. Maurit. & Seych. 256. 1877; Hemsl. & Turrill, Journ. Bot. 55: 285--286. 1917; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 78 & 82. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 53 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 65. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 123 & 201. 1949.

Large tree; flowering branchlets rather stout, stiff, straight and flattened, glaucous-pulverulent when young; leaves 5-foliolate, large on sterile branches, small on flowering branches, all long-petiolate; petioles 6--10 cm. long on flowering branches and 15--20 cm. long on sterile branches, glaucous-pulverulent; leaflet-blades coriaceous, oblanceolate or obovate to suboblong, 5--30 cm. long (including the petiolules), rounded or sometimes abruptly and obtusely acuminate at the apex, attenuate to the base, glabrous or glabrescent, the margins crisped; petiolules glaucous-pulverulent, canaliculate; midrib stout, impressed above, elevated beneath; cymes composite, dense, about 5 cm. wide, ferruginous-puberulent, pedunculate, borne in the axils of the uppermost leaves and shorter than the leaves; bractlets linear or filiform, 2--5 mm. long; flowers small, numerous, very short-pedicellate; calyx campanulate, 3--4 mm. long, pubescent, its rim very shortly 5-toothed; corolla ventricose, about 1 cm. long, densely tomentose outside, obliquely 2-lipped, the lower lip with its middle lobe much larger, orbicular, crisped, hirsute at the top on the inner surface; stamens scarcely exerted; filaments fimbriate at the base; style glabrous, included; stigma shortly bifid; fruit drupaceous, oblong or ellipsoid, 2--2.5 cm. long, subtended by a short fruiting-calyx, with a bony endocarp, obscurely 4-sulcate.

The species is based on Gardiner s.n. from Mahé, Horne 547, said to be common on many parts of the shore of Mahé, and Thomasset 124 from the Cascade Estate, Mahé, Seychelles Islands. Pieper is of the opinion that it belongs in the Subgenus Euvitex. It is the unnamed Vitex species cited by Baker in his Flora of Mauritius and the Seychelles.

VITEX HUMBERTI Moldenke, Phytologia 3: 436--437. 1951.

Tree; branchlets medium-stout, densely fulvous-villous with subappressed antrorse hairs on the younger parts, glabrescent in age; nodes not annulate; principal internodes apparently abbreviated; leaves decussate-opposite, 3--5-foliolate; petioles rather stout, 3.5--6 cm. long, densely appressed-villosulous with

antrorse fulvous hairs, decidedly flattened above; petiolules unequal, the central one 8--14 mm. long, densely appressed-villosulous like the petioles, flattened and sulcate above, the lateral ones 1--5 mm. long; leaflet-blades rather uniformly gray-green on both surfaces, subcoriaceous, elliptic or obovate, unequal in size, the central ones 6.5--9 cm. long, 3.5--4.5 cm. wide, mostly rounded or emarginate at the apex, varying to very bluntly short-mucronate, entire and slightly revolute along the margins, acute or obtuse at the base, conspicuously bullate above, scabridous-pubescent above and beneath, the lateral ones smaller and often asymmetric at the base; midrib slender, deeply impressed and villosulous above, very stout and prominent and fulvous-villosulous beneath; secondaries slender, 6--9 per side, slightly arcuate-ascending, deeply impressed above, very sharply prominent beneath, arcuately joined in many irregular loops near the margins; larger parts of the veinlet reticulation deeply impressed above and sharply prominent beneath; inflorescence axillary, subsessile, rather few-flowered, very densely fulvous-villosulous throughout; peduncles not more than 5 mm. long; cyme-branches much abbreviated; bractlets linear-subulate, to 5 mm. long, densely villosulous; calyx turbinate, about 4 mm. long and 2.5 mm. wide, densely fulvous-villosulous, its rim very shortly dentate; corolla cylindrical, its tube 2--2.3 cm. long, incurved, about 5 mm. wide at the apex, glabrous at the base but densely spreading-villosulous with fulvous hairs on the part above the calyx, the lobes about 3 mm. long; the 4 stamens and the style exerted about 5 mm. from the mouth of the corolla-tube; fruit not known.

The type of this species was collected by Henri Humbert (no. 23793) -- in whose honor it is named -- among ericaceous vegetation on the east summit of Massif de Marojijy, at an altitude of about 1700 meters, Madagascar, on March 25 or 26, 1949, and is deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris.

Citations: MADAGASCAR: Humbert 23793 (N--isotype, N--photo of type, P--type, Z--photo of type).

VITEX HUMBERTI var. ANGUSTATA Moldenke, Phytologia 3: 437--438. 1951.

This variety differs from the typical form of the species in having thin-chartaceous leaflet-blades, of which at least the central ones are narrowly oblanceolate and long-acuminate at both the apex and the base, and densely villosulous on the larger venation beneath. It is said to be a shrub 5 meters tall, the calyx covered with bright-orange hairs, the corolla golden-yellow, covered on the outside with orange hairs, the inside of the corolla and the stamens golden-yellow, the anthers brown, the filaments capillary, and the pistil yellow and bifid.

The type of the variety was collected at Anony, Forêt du Nord, in the Shinaka country, Madagascar, on September 3, 1937. It is Herb. Jardin Botanique de Tananarive 2944, deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris. The variety has been collected at an altitude of 900 meters, bloom-

ing in June.

Citations: MADAGASCAR: Cours 277 (P); Herb. Jard. Bot. Tananarive 2944 (N--isotype, N--photo of type, P--type, Z--photo of type).

VITEX HYPOLEUCA Schau. in A. DC., Prodr. 11: 690. 1847.

Synonymy: Vitex blancheti Moldenke, Geogr. Distrib. Avicenn. 26, nom. nud. 1939. Vitex intermedia Schau. ex Moldenke, Prelim. Alph. List Invalid Names 51, in syn. 1940. Vitex blanchetii Moldenke, Suppl. List Invalid Names 11, in syn. 1941. Vitex blanchettii Moldenke, Suppl. List Invalid Names 11, in syn. 1941. Vitex intermedia Blanchet ex Moldenke, Alph. List Invalid Names 53, in syn. 1942.

Literature: Schau. in A. DC., Prodr. 11: 690. 1847; Schau. in Mart., Fl. Bras. 9: 249. 1851; Moldenke, Geogr. Distrib. Avicenn. 26 & 27. 1939; Moldenke, Prelim. Alph. List Invalid Names 51. 1940; Moldenke, Suppl. List Invalid Names 11. 1941; Moldenke, Alph. List Invalid Names 52 & 53. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 50. 1943; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 95 & 201. 1949.

Shrub; branches and branchlets stout, often very heavy, obtusely tetragonal, gray, minutely and obscurely puberulent or glabrate in age; young twigs densely fulvous-tomentellous or short-pubescent; nodes not annulate; principal internodes 1--3.8 cm. long, somewhat flattened and ampliate; leaf-scars large and conspicuous; leaves decussate-opposite, 3- or 5-foliolate; petioles slender, 6--15 cm. long; petiolules about 1 mm. long and very densely appressed whitish- or yellowish-puberulent with matted hairs, or obsolete; leaflet-blades firmly chartaceous, subcoriaceous, or even coriaceous, nigrescent above in drying, flavescent or albidous beneath, oblong-elliptic or elliptic, varying to obovate-oblong, 4.5--9 cm. long, 1.7--3 cm. wide, acute or short-acuminate at the apex, entire, acute at the base and attenuate-prolonged into the petiolule, plainly penninerved, densely papillose above on the lamina and strigillose with albidous hairs along the midrib and secondaries, glabrescent in age, very densely matted-tomentellous with albidous or flavescent tomentum beneath; midrib deeply impressed above, slender, rounded-prominent beneath; secondaries very slender, 13--13 per side, short, issuing at almost right angles to the midrib, ascending, rather straight, arcuately joined at the margins, plane or sub-impressed above and conspicuous by their white pubescence, prominent beneath; vein and veinlet reticulation indiscernible on both surfaces or the tertiaries slightly subprominent beneath; inflorescence axillary, borne above the leaf-scars on old wood, very small and cymose, 1.5--2.5 cm. long, 1.2--2.5 cm. wide, few-flowered or almost many-flowered, dense and congested, short-pedunculate, very densely tomentellous throughout with flavescent tomentum; peduncles slender, to 1 cm. long or obsolete; bractlets linear-subulate, to 6 mm. long, densely yellowish-tomentellous; flowers fragrant; calyx campanulate, somewhat angular, 2.5--4 mm.

long, about 2.5 mm. wide, its rim shortly dentate, the teeth broadly ovate, slightly subacuminate; corolla rose, hypocrateriform, medium in size, its tube about twice as long as the calyx, somewhat ampliate above, sericeous-pubescent on the outside above the calyx, its limb pulverulent, the 4 smaller lobes ovate, obtuse, the central lower lobe much enlarged, shortly clawed, rounded, undulate-margined, villous-bearded at the base; stamens and style somewhat exerted.

The type of this very distinct species was collected by Jacques Samuel Blanchet (no. 1907) in sandy soil in the woods of the Catingas, Bahia, Brazil, in 1834, and was originally designated as Vitex intermedia, but this name was never validly published. It seems probable that the specimens labeled "1901" are actually part of the same collection. The difference in the final digit of the number is perhaps due to a misinterpretation of the handwriting on the original label. The type collection of V. blancheti is no. 1028 of the same collector.

Citations: BRAZIL: Bahia: Blanchet 1901 (Bm, Cb, E--photo, N, N--photo, Z--photo), 1907 [Macbride photos 7891] (B--photo of type, Dc--type, F--645688--photo of type, Kr--photo of type, N--photo of type, N--photo of type, Z--photo of type). State undetermined: Blanchet 1028 [Macbride photos 30186] (Bm, Cb, Cb, F--869625, F--923150--photo, Kr--photo, N--photo).

VITEX IBARENSIS J. G. Baker, Journ. Linn. Soc. Lond. 20: 226. 1883.

Literature: J. G. Baker, Journ. Linn. Soc. Lond. 20: 226. 1883; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 79 & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 53 & 103 (1942) and [ed. 2], 123 & 201. 1949.

An erect shrub; branchlets woody, slender, gray, obtusely tetragonal, white-pulverulent on the youngest parts, soon glabrate; nodes not annulate; principal internodes 1--3.5 cm. long; leaves decussate-opposite, 1-foliolate; petioles slender, 7--14 mm. long, minutely pulverulent-puberulent, finally glabrescent; blades firmly chartaceous ("subcoriaceous" according to Baker), oblong or elliptic, rather uniformly bright-green on both surfaces, 5--10 cm. long, 2.3--4.5 cm. wide, acute or obtuse at the apex, entire, acute or deltoid at the base, glabrous on both surfaces; midrib slender, plane above, prominent beneath, rapidly diminishing in size toward the apex; secondaries very slender, 6--8 per side, arcuate-ascending, obscure above, prominent beneath, arcuately joined in many loops near the margins; veinlet reticulation abundant, mostly noticeable and very slightly subprominulous above and beneath; inflorescence cymose, congested in the axils of the upper leaves, the cymes only 3- or 4-flowered, sessile or nearly so; pedicels filiform, very short, usually only 1 mm. long, minutely puberulent; bractlets narrow, more than twice as long as wide; calyx infundibular-campanulate, 4--6 mm. long, rather densely stellate-puberulent with brownish or canescent hairs, its rim very shortly 5-toothed, the teeth very small, deltoid-cuspidate; corolla reddish, subcylindric,

incurved, 2--2.3 cm. long, the tube 3.5--4 mm. wide at the apex, rather densely pilose-pubescent and resinous-punctate on the outside, the lobes very small, semiorbicular, 1--2 mm. long, densely pubescent outside; stamens and style exerted about 1 cm. from the corolla-mouth; ovary merely glandulose.

The species is known only from the original collection, made by Langley Kitching in the Ibara country of Madagascar and deposited in the herbarium of the Royal Botanic Gardens at Kew.

Citations: MADAGASCAR: Kitching s.n. [Ibara country] (K--type, N--photo of type, Z--photo of type).

VITEX IMPRESSINERVIA Mildbr. ex Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 44, 57, & 83, hyponym (1923); Pieper in Fedde, Repert. Spec. Nov. 26: 162--163. 1929.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 44, 57, & 83. 1928; Pieper in Fedde, Repert. Spec. Nov. 26: 162--163. 1929; Hill, Ind. Kew. Suppl. 3: 249. 1933; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48 & 103 (1942) and [ed. 2], 114 & 201. 1949.

Only slightly hairy shrub; branchlets terete, glabrous; leaves opposite; petioles 8--13 cm. long, glabrous; leaflets 5; petiolules 1--2 cm. long; leaflet-blades herbaceous or thin-coriaceous, obovate, long-acuminate at the apex, entire, cuneate at the base, very densely punctulate above, the epidermal cells very large, the central leaflets over 10 and up to 30 cm. long; vein and veinlet reticulation conspicuously impressed above; inflorescences crowded in the axils of subulate bracts; peduncles about 1 cm. long; bractlets linear; calyx plainly separate from the pedicel, campanulate, 2--2.5 mm. long, sparsely pilosulous, the hairs appressed and 2- or 3-celled with a 1- or 2-celled basal portion and a more elongate and more or less thickened end-cell, the rim irregularly 5-dentate or subtruncate; corolla long-tubular, curvate, 4--5 times as long as the calyx, over 8 mm. long, its tube more than 1 1/2 times the length of the calyx, the upper portion puberulent and glandulose, the tip of the upper lip 1/5 to 1/3 the length of the tube; ovary globose, smooth, glandulose or with only a few scattered hairs, not elongate.

The species is based on Mildbraed 6074, collected at Bez. Kribi, Beson, in the southern Cameroons Forest area, and is deposited in the herbarium of the Botanisches Museum at Berlin. The publication of this binomial in 1928 was not as a "nomen nudum" as some writers claim, since the species can be identified in the key supplied by Pieper, and the type collection is cited. A formal description, however, was not published until a year later.

VITEX INTEGRIFOLIA Urb. in Fedde, Repert. Spec. Nov. 13: 369. 1922.

Literature: Urb. in Fedde, Repert. Spec. Nov. 13: 369. 1922; Moldenke, Geogr. Distrib. Avicenn. 7. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 26 & 103 (1942) and [ed. 2], 48

& 201. 1949.

Medium-sized tree; branchlets and twigs rather slender, woody, gray, obtusely tetragonal, very minutely and obscurely puberulent or glabrate; nodes annulate, but not conspicuously so on older wood; principal internodes very much abbreviated, 1--10 mm. long on short lateral twigs, elongate to 8.5 cm. on vigorous shoots; leaves decussate-opposite, abundant, 1--3-foliolate, mostly 1-foliolate except on vigorous shoots; petioles slender or stoutish, 3--12 mm. long, convex beneath, conspicuously flattened and margined above, minutely and sparsely puberulent or strigillose, becoming glabrate, not noticeably ampliate at the base, rather obscurely jointed at the apex; leaflets (when 3) very unequal in size, the 2 lateral ones much reduced, sessile; leaflet-blades subcoriaceous, dark-green above, much lighter beneath, very shiny on both surfaces, the central one elliptic, 1.6--13.5 cm. long, 1.2--5.6 cm. wide, acute at the apex, varying to obtuse, rounded, or emarginate, entire, rounded or acute at the base, glabrate on both surfaces; midrib slender, broad and flat above, very prominent and sharp beneath; secondaries slender, few, distant, irregular, 5--12 per side, arcuate-ascending, varying from broad and flat to subimpressed or even subprominulous above, sharply prominent beneath, mostly bifid and very irregularly joined near the margins; vein and veinlet reticulation fine and abundant, subprominulous above, flat or the larger portions subprominulous beneath; inflorescence axillary, cymose or racemose, sparse, 1--2.5 cm. long, 1--1.5 cm. wide, 1--7-flowered; peduncles very slender, 1 cm. long or less, flattened, minutely puberulent or glabrate; pedicels filiform, 2--9 mm. long, mostly glabrate; bractlets and prophylla linear, 1--2 mm. long; corolla blue.

The type of this species was collected by William Louis Abbott (no. 1307) at Lajana, Samaná Peninsula, at an altitude of 100 meters, in the Dominican Republic, on April 11, 1921, and is deposited in the herbarium of the Botanisches Museum at Berlin. The species has been collected in anthesis in April and May, and has been found at altitudes up to 510 meters. Ekman reports it as "very common" on limestone crags and on top of the Pan de Azucar, Samaná. Ekman H.14882b at Stockholm shows 2- and 3-foliolate leaves. The Poiteau collection cited below was originally identified as "Athyra sp." and described on the label as "arbor excelsa".

Citations: HISPANIOLA: Dominican Republic: W. L. Abbott 1307 (B--type, G--isotype, N--isotype, W--1079013--isotype); Ekman H.14882a (B, Mi, N, S), H.14882b (B, E--photo, F--839503, N, N--photo, S, Z--photo), H.15438 (B, N, S); Poiteau s.n. [St. Domingue] (P).

VITEX IRAQUENSIS Moldenke, Phytologia 4: 61--62. 1952.

Shrub or tree; branches slender, fistulose, glabrous or practically so throughout, the younger parts compressed and brunnescent in drying; nodes annulate; principal internodes 3.3--8 cm. long or longer; leaves decussate-opposite, palmately compound,

3--7-foliolate; petioles slender, 3.5--15.5 cm. long, glabrous, canaliculate, club-shaped at the apex; leaflet-blades membranous, dark-green above, lighter green beneath, varying in size from the largest central one to the smallest basal ones, the central one oblanceolate, 6--14 cm. long, short-acuminate or cuspidate at the apex, entire, long-attenuate or cuneate at the base, glabrous on both surfaces, borne on a glabrous petiolule 1--2 cm. long, the lateral ones smaller and borne on shorter petiolules; midrib very slender, often undulate in drying, flat above, very prominent beneath; secondaries very slender, 6--10 per side, arcuate-spreading, not anastomosing, flat above, prominent beneath; veinlet reticulation rather sparse and inconspicuous on both surfaces; inflorescence axillary, cymose, much shorter than the subtending mature petioles; peduncles slender, compressed, 4--5 cm. long, nigrescent, glabrous; cymes very loosely bifurcate, rather few-flowered, completely glabrous throughout, nigrescent; bractlets linear, 2--3 mm. long, glabrous; pedicels slender, 1--2 mm. long; calyx campanulate, about 2 mm. long and wide, glabrous, nigrescent, the margin subtruncate, minutely 5-apiculate; corolla zygomorphic, pilosulous outside, its tube sharply curvate or genuflexuous, about 5 mm. long, the lobes small.

The type of this species was collected by Yusuf Lazar near Bagdad, Iraq, in July of 1918, and is deposited in the Britton Herbarium at the New York Botanical Garden. It was formerly confused with V. grandifolia var. bipindensis (Gürke) Pieper.

Citations: IRAQ: Lazar s.n. [near Bagdad, July 1918] (N--type).

VITEX IRINGENSIS Gürke in Engl., Bot. Jahrb. 28: 464. 1900.

Literature: Gürke in Engl., Bot. Jahrb. 28: 464. 1900; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 521. 1900; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 49, 65, & 83. 1928; Moldenke, Known Geogr. Distrib. Verbanac., [ed. 1], 50 & 103 (1942) and [ed. 2], 117 & 201. 1949.

Tree, to 7 m. tall, or shrub; crown spreading; bark gray; branchlets densely yellow-tomentose; leaves 5-foliolate; petioles to 13 cm. long, yellow-pubescent; central leaflet-blades cuneate at the base, to 13 cm. long and 6 cm. wide and short-petiolate, the two outer blades also cuneate at the base but sessile and mostly only to 10 cm. long and 5 cm. wide, all are oblong-subobovate, short-acuminate at the apex, entire, coriaceous in texture, dark-green and very sparsely scattered-pilose with appressed hairs or glabrescent above, gray-green and tomentose beneath, the apex of the petiolules and base of the leaflet-blades densely yellow-tomentose; inflorescence axillary in the upper leaf-axils; peduncles to 6 cm. long; cymes binary, separate and distinct, densely 20--30-flowered; bracts small, lanceolate, about 2 cm. long and 3 mm. wide, narrowed at the base, entire, of similar consistence and pubescence as the leaflet-blades, borne on stalks about 2 cm. long; pedicels 2--3 mm. long; bractlets 6--9 mm. long, almost 1 mm. wide; calyx campanu-

late, 5--6 mm. long, its rim 5-toothed, the teeth deltoid, 1.5--2 mm. long and wide, acute; corolla white, with the largest petal blue, its tube subcurvate, 7--8 mm. long, pubescent on the outside, its limb 5-lobed, the lobes rounded, obtuse, the upper one about twice the size of the rest, somewhat crisped; stamens about as long as the corolla-tube, pubescent; style hardly surpassing the stamens; stigma rather deeply bifid.

The species is based on Walter Goetze 548, collected in red sandy laterite on the plateau, altitude 1500 meters, Uhehe, Rugaro, near Iringa, Tanganyika Territory. It is known only from the type collection, found in anthesis in February. A common name for it is "mkoga". It is said to be related to V. fischeri Gürke, but is less hairy.

VITEX ISOTJENSIS Gibbs, Journ. Linn. Soc. Lond. Bot. 37: 463--464. 1906.

Literature: Gibbs, Journ. Linn. Soc. Lond. Bot. 37: 463--464. 1906; S. Moore, Journ. Bot. 45: 94. 1907; Prain, Ind. Kew. Suppl. 4: 248. 1913; Eyles, Trans. Royal Soc. South Afr. 5: 459. 1916; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 47, 60, & 83, pl. 10. 1928; Worsdell, Ind. Lond. Suppl. 2: 500. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 57 & 103 (1942) and [ed. 2], 119 & 201. 1949.

Illustrations: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: pl. 10. 1928.

Small tree, about 7 m. tall, with a spreading crown; branches glabrous; branchlets flavous-pubescent when young; leaves 5-foliolate; petioles 6--7 cm. long, yellow-pubescent; petiolules 1--2 mm. long, yellow-pubescent; leaflet-blades dark-green, obovate, obtuse or cuneate at the base, varying from rounded or very obtuse to retuse at the apex, gray-velutinous on both surfaces, the central ones 3.5--5.5 cm. long and 2.6--4 cm. wide, the lateral ones about 3 cm. long and 2.5 cm. wide but often very much smaller; secondaries 9 or 10, flat above, prominent beneath, the median and lateral veins very pilose; peduncles 3.5--5.5 cm. long; cymes flat, equaling the leaves, about 1.5 cm. long, 3--5 cm. wide, densely yellow-pubescent; bracts 6--7 mm. long, densely yellow-pubescent; flowers small; calyx tubular-infundibular, about 3 mm. long and wide, obscurely bilabiate, yellow-pubescent outside, its rim 5-dentate, the 3 anterior teeth about 0.7 mm. long and 1 mm. wide, larger than the 2 posterior ones which are only 0.5 mm. long and 0.7 mm. wide; corolla short-tubular, about 7 mm. long to the end of the anterior lobe, pubescent outside, white with a mauve lip, its tube slightly incurved, exerted about 2 mm. from the calyx, the posterior and lateral lobes small, the anterior one very large, orbicular, crenulate; stamens and style subincluded, the anthers and filaments about 3 mm. long, the style and stigma about 5 mm. long.

The species is based on Gibbs 236, collected in a cleft of granite rock on the top of Isotje, in the Matopo hills of Rhodesia. It is said to differ from V. hildebrandtii Vatke [= V. payos

(Lour.) Merr.] in its obovate leaflet-blades, which are rounded at the apex, its bracts not equaling the flowers, the calyx being shorter and obscurely bilobed, and in other characters. Pieper says on page 60 of the reference cited above "non V. isotjensis Moore", but does not indicate of what the latter is supposed to be a synonym. Moore, in his reference cited above, credits the binomial correctly to L. S. Gibbs and cites Eyles 1201, a large shrub with heliotrope flowers, growing on granite formations at Bulawayo. This, apparently, is the collection Pieper excludes from the species. Meeuse, in a letter to me dated December 9, 1953, states that in his opinion V. isotjensis Gibbs may possibly be a synonym of V. harveyana H. H. W. Pearson. Pieper differentiates V. isotjensis from V. mombassae Vatke by its subglabrate ovary and 2-lipped calyx -- V. mombassae having a very hairy ovary and an actinomorphic calyx.

VITEX KAPIRENSIS DeWild. in Fedde, Repert. Spec. Nov. 13: 141--142. 1914.

Literature: DeWild. in Fedde, Repert. Spec. Nov. 13: 141--142. 1914; Prain, Ind. Kew. Suppl. 5: 273. 1921; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 46, 60, & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49 & 103 (1942) and [ed. 2], 115 & 201. 1949.

Tree; branches more or less tetragonal, brown, short-pubescent; leaves 3--5-foliolate; petioles about 1/6 the length of the blades, 3.5--11.5 cm. long, short-tomentose; petiolules to 2.5 cm. long, canaliculate; leaflet-blades elliptic, to 12 cm. long and 5.2 cm. wide, acuminate at the apex, entire, cuneate or rarely rounded at the base, scabrous above, tomentose beneath, the hairs 0.1--0.5 mm. long; secondaries about 17; inflorescence axillary; peduncles 11--13 cm. long, velutinous; flowers not known; fruiting-calyx accrescent, cupuliform, to 11 mm. wide, short-tomentose on the outside; fruit obovate, to 16 mm. long and 11 mm. wide.

The species is based on Homblé 1152, collected in the valley of Kapiri, upper Katanga, in February of 1913. It is said to be related to V. fischeri Gürke and V. bequaerti DeWild. Pieper cites, in addition, Burt-Davy 17935 from Elisabethville, Belgian Congo.

VITEX KENIENSIS Turrill, Kew Bull. 1915: 47--48. 1915.

Literature: Turrill, Kew Bull. 1915: 47--48. 1915; Prain, Ind. Kew. Suppl. 5: 273. 1921; Fries, Notizbl. Bot. Gart. Berlin 8: 702. 1924; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 46, 69, & 83, pl. 9. 1928; Junell, Symb. Bot. Upsal. 4: 93. 1934; Worsdell, Ind. Lond. Suppl. 2: 500. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 50 & 103 (1942) and [ed. 2], 118 & 201. 1949.

Illustrations: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: pl. 9. 1923.

Tree to 27 m. tall; leaves 5-foliolate; petioles to 13.5 cm.

long, terete or slightly compressed, ferruginous-pubescent or tomentose; leaflet-blades oblong-elliptic, short-acuminate at the apex, rounded or subacute at the base, very often slightly oblique, pubescent above especially on the slightly impressed midrib and secondaries, inconspicuously transversely venose, ferruginous-pubescent or almost tomentose on the prominent midrib and secondaries beneath, otherwise pubescent, the central ones 16--17 cm. long and about 8.5 cm. wide, with about 16 pairs of secondaries, and on petiolules 4 cm. long, the lateral ones about 15 cm. long and 8.5 cm. wide, with about 15 pairs of secondaries, and on petiolules 3--3.25 cm. long, the basal ones about 10.5 cm. long and 6--6.5 cm. wide, on petiolules 1.5--1.75 cm. long, all the petiolules ferruginous-tomentose; inflorescence terminal (or sometimes axillary), about 27 cm. long and 24 cm. wide, loosely dichotomous, the branches ferruginous-pubescent or -tomentose; peduncles to 13 cm. long; bracts 0.5--1 cm. long, 1--4 mm. wide, glabrous above, densely ferruginous-tomentose beneath; pedicels about 1 mm. long; calyx campanulate, about 4 mm. long and wide, its rim subtruncate, with 5 inconspicuous broadly triangular teeth about 0.5 mm. long and 1.5 mm. wide; corolla ferruginous-tomentose on the outside, its tube broadly cylindrical, gradually ampliate above, about 5 mm. long, about 2.5 mm. wide at the base and 4 mm. wide at the apex, its limb 5-lobed, the anterior lobe orbicular, about 3 mm. long and 3.5 mm. wide, the lateral lobes oblong, about 3 mm. long and 2 mm. wide, the posterior ones oblong-ovate, about 2.5 mm. long and 2 mm. wide; stamens 4, slightly exerted; anthers about 0.75 mm. long; the 2 anterior filaments about 4 mm. long, dilated and barbate below, the 2 posterior ones about 3 mm. long, barbate at the base; ovary spherical, about 1.75 mm. long and wide, barbate at the apex; style about 6 mm. long, slightly exerted; stigma glabrous, bifid; fruit pyriform, about 1.1 mm. long and 0.8 mm. wide, glabrous.

The species is based on D. K. S. Grant [Herb. Battiscombe] 846 from Mount Kenya, collected at 1500--1800 meters altitude. Pieper cites Battiscombe 563, Fries 1721 and 1840, and the type, all from Kenya, but notes that Fries 1840 differs from the rest of the material in having denser and firmer rusty-brown pubescence.

Turrill states that this is one of the most important timber trees of northeastern and eastern Kenya, where it attains a height of 80 to 90 feet. The wood is light, easily worked, and of a good appearance, the grain much resembling that of teak (Tectona grandis L. f.). The native Meru name is said to be "moru" or "muhuru". The species is easily distinguished, he says, by its oblong-elliptic leaflets which have comparatively long petiolules, the ferruginous tomentum which covers most parts of the plant, and the large dichotomously branched inflorescences. The persistence and enlargement of the fruiting-calyx, which is characteristic of this and related genera of Verbenaceae, is very noticeable in this species because of the somewhat isolated position of the fruits with their enlarged calyxes in

the forks of the inflorescence produced by the cymosely dichotomous nature of the branching.

In the original description the bracts are said to be 0.5--1 "mm." long and 1--4 mm. wide -- probably a misprint for "cm." as to length; also what are probably meant to be the posterior corolla-lobes are referred to as "anticis".

VITEX KLUGII Moldenke, Phytologia 1: 101--102. 1934.

Synonymy: Vitex triflora x orinocensis Ducke ex Moldenke, Prelim. Alph. List Invalid Names 52, in syn. 1940. Vitex amazonica Moldenke, Geogr. Distrib. Avicenn. 26, nom. nud. 1939; Trop. Woods 64: 29--30. 1940.

Literature: Moldenke, Phytologia 1: 101--102. 1934; Moldenke, Geogr. Distrib. Avicenn. 24 & 26. 1939; Moldenke, Prelim. Alph. List Invalid Names 52. 1940; Moldenke, Trop. Woods 64: 29--30. 1940; Moldenke, Alph. List Invalid Names 55. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 35, 39, 102, & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 67. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 74, 95, & 201. 1949.

Bush or small tree, to 20 m. tall; trunk to 13 cm. in diameter; branchlets and twigs slender or medium-slender, obtusely tetragonal and usually decussate-flattened, varying from brown or brownish to dark-gray, medullose, the youngest parts sparsely pubescent with short scattered hairs or lightly strigillose and granular-pulverulent, becoming puberulent, the older parts glabrous, somewhat ampliate at the nodes; axillary buds fulvous-hirsute; nodes often annulate; principal internodes 1--3 cm. long; leaf-scars large, corky, very prominent; leaves decussate-opposite, 3-foliolate; petioles rather slender, dark, 2--6.5 cm. long, convex beneath, flattened and canaliculate above, semicircular in cross-section, not much ampliate at the base, slightly flabelliform at the apex, strigillose-puberulent beneath, strigillose only at the margins or not at all toward the base above or on the margins and in the central channel, usually strigillose throughout toward the apex; leaflets subequal in size or the lateral ones slightly smaller, all plainly petiolulate; petiolules subequal or the central ones slightly longer, 2--10 mm. long, slender, strigillose-puberulent, deeply canaliculate and margined, those on lateral leaflets usually only 1--5 mm. long; leaflet-blades symmetrical or the lateral ones occasionally asymmetrical, thin-chartaceous or submembranous, rather dark-green above, somewhat lighter beneath, shiny on both surfaces, the central one elliptic or broadly elliptic, varying to subobovate or obovate-elliptic, 6--22 cm. long, 2.3--10 cm. wide, varying from short-acuminate or acuminate to subcaudate at the apex, rarely acute or blunt on stunted leaves, entire, acute or acuminate at the base, glabrous and shiny on both surfaces except for the minutely puberulent-pulverulent midrib above or obscurely pubescent beneath with scattered hairs on the midrib and larger veins, often strigillose on the margins near the base; midrib slender, slightly impressed above, very prominent beneath; secondaries slender, 10--18 per side, ascending or arcuate-ascending, flat

or very slightly subprominent above, mostly inconspicuous, sharply prominent beneath, conspicuously arcuately joined near the margins beneath; vein and veinlet reticulation abundant and very fine, mostly inconspicuous or barely indiscernible above or more rarely subprominent, the larger portions always subprominent beneath; inflorescence axillary or decidedly supra-axillary and borne 6--9 mm. above the leaf-axils, cymose, sparse; cymes solitary in or above each axil, opposite, few in number, much shorter than the subtending leaves, 4.5--9 cm. long, 2--7.5 cm. wide, 3 or 4 times dichotomous, divaricate, very lax and loose, often only one branch of each dichotomy developing, rather few-flowered, the branches wide-spreading, sparsely strigillose or minutely puberulent throughout, apparently conspicuously bracteate in fruit; peduncles slender, decidedly flattened, 2--4.5 cm. long, conspicuously ampliate at the apex and annulate with a band of denser flavescent puberulence, otherwise very sparsely and obscurely short-pubescent or strigillose with scattered hairs; cyme-branches flattened, ampliate, sparsely pubescent like the peduncles, usually more densely so in annulate fashion at every furcation where the hairs are fulvous; pedicels slender, varying from obsolete to 2 mm. long and densely canescent-puberulent, the fruiting-pedicels stout, about 1 mm. long, puberulent or shortly strigose-pubescent; bracts often 2 in number, borne at the apex of the peduncle, foliaceous, simple, elliptic, stipitate, the stalks 5--8 mm. long, the blade 4--7 cm. long and 1.6--3 cm. wide, similar to a leaflet or blunt at the apex and base; bractlets linear, 2--4 mm. long, densely flavescent-puberulent; prophylla linear, 1--1.5 mm. long, densely puberulent; calyx campanulate, 4--5 mm. long, 2--3.5 mm. wide, densely appressed-puberulent with flavescent antrorse hairs on the outside, its rim distinctly 5-lobed, the lobes ovate-triangular, about 1 mm. long and wide, acute; corolla hypocrateriform, varying from blue or bluish to violet, with the interior of the upper lip white, its tube infundibular, 7--9 mm. long, slightly ampliate at the apex, very densely short-pubescent with flavescent antrorse hairs on the outer surface, the lobes subequal, ovate, 3--4 mm. long, subacute; stamens 4, inserted on the corolla-tube, alternate with its lobes, exserted; style 1; stigma bifid; ovary superior, 2-celled, with 2 central ovules in each cell; fruiting-calyx incrassate, subcoriaceous, campanulate or cupuliform, 5--6 mm. long, 10--12 mm. in diameter, venose on both surfaces, strigose-pubescent or puberulent with very short and closely appressed hairs on the outside, glabrous inside, its rim decidedly but rather irregularly 5-lobed, the lobes broadly triangular-ovate, terminating in a short tooth; fruit drupaceous, hard and dry, narrowly elliptic, 1.2--1.7 cm. long, 6--9 mm. wide, obtuse and slightly umbilicate at both ends, densely short-puberulent throughout with brownish or gray hairs, 2-seeded.

The type of this species was collected by Guillermo Klug (no. 625) -- in whose honor it is named -- in the forest at an altitude of 100 meters at Mishuyacu, near Iquitos, Loreto, Peru, in

December of 1929, and is deposited in the Britton Herbarium at the New York Botanical Garden. The type of *V. amazonica* was collected by Boris Alexander Krukoff (no. 7149) on campinarana alta on the plateau between Rio Livramento and Rio Ipixuna, municipality Humayta, Amazonas, Brazil, on November 10, 1934. The species is known only from Amazonian Colombia, Peru, and Brazil, inhabiting the high primeval forest on non-inundated land, flowering and fruiting from October to January. It ascends to 900 feet altitude in Colombia. Schultes & Cabrera describe the fruit as "green" in January.

Ducke in Notizbl. Bot. Gart. Berlin 11: 590--591 (1932) suggests that Herb. Rio de Janeiro 22529 represents a natural hybrid between *V. triflora* Vahl and *V. orinocensis* H.B.K. and that therefore his *V. brevilabiata* is the same hybrid. This collection, however, is certainly *V. klugii* and is not identical with the collections cited by me as typical *V. brevilabiata* Ducke.

Citations: COLOMBIA: Amazonas: Garcia-Barriga 14122 (W--2053717). Vaupés: Schultes & Cabrera 15112 (Z), 19340 (W--2172550). PERU: Loreto: Klug 625 (F--613393--isotype, N--type, N--1455624--isotype). BRAZIL: Amazonas: Ducke s.n. [Herb. Rio de Janeiro 22529] (B, K, N, N--photo, S, Ut, W--1513518, Z--photo), s.n. [Herb. Rio de Janeiro 24396] (N); Krukoff 7149 (Br, F--373146, N, S), 8688 (Br, F--227842, Kr, N, S).

VITEX KRUKOVII Moldenke, Geogr. Distrib. Avicenn. 27, nom. nud. (1939); Phytologia 1: 487--488. 1941.

Literature: Moldenke, Geogr. Distrib. Avicenn. 27. 1939; Moldenke, Phytologia 1: 487--488. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 67. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 95 & 201. 1949.

Tree, about 16 m. tall; branchlets dark, flattened-tetragonal, very sparsely pilose with scattered hairs; twigs slender, extremely densely and conspicuously villous-tomentose with long fulvous hairs; leaves decussate-opposite, petiolate, 5-foliolate; petioles slender, 6.5--10 cm. long, rounded beneath, flat above, very densely villous-tomentose with fulvous hairs, slightly ampliate at the apex; leaflets mostly asymmetrical, the central ones noticeably larger than the two lowest and borne on longer petiolules, the young leaves with all the petiolules obscure; petiolules 3--11 mm. long, very densely villous-tomentose with fulvous hairs; central leaflet-blades broadly elliptic or slightly obovate, 14--19 cm. long, 6.5--9 cm. wide, short-acuminate at the apex, acuminate or cuneate at the base, entire, villous along the midrib above and along both the midrib and secondaries beneath with long fulvous hairs, often also very sparsely so on the veinlet-reticulation beneath; basal leaflets similar but smaller, 6--9.5 cm. long, 2.3--4.5 cm. wide; midrib somewhat impressed above, very prominent beneath; secondaries 10--15 per side, close together, rather straight, abruptly arcuate-joined near the margins; inflorescence axillary, solitary, opposite,

cymose; cymes capitate, apparently 2- or 3-flowered, 9--9.5 cm. long; peduncles slender, erect, divergent, 7--8 cm. long, densely villous-tomentose with long fulvous hairs (1--2 mm. long, like on the twigs and petioles), apparently bearing a few bractlets at the apex; flowers not known; fruiting-pedicels obsolete; fruiting-calyx cupuliform, large, about 9 mm. long and 12 mm. in diameter, densely strigose-villous with closely appressed rather long flavescent hairs, its rim deeply 5-lobed, the lobes triangular-ovate, long, rather narrow, acute, and erect; fruit drupaceous, ellipsoid or rounded, about 14 mm. long and wide, extremely densely and beautifully villous with long (2--3 mm. long) fulvous or brown glistening hairs, all forward-pointing and appressed.

The type of this very distinctive species was collected by Boris Alexander Krukoff (no. 6279) -- in whose honor it is named -- on varzea land on the inundated shore of a creek with blackish water, near Tres Casas, municipality of Mumayta, in the Rio Madeira region, Amazonas, Brazil, on September 24, 1934, and is deposited in the Britton Herbarium at the New York Botanical Garden. Only fruiting specimens are known thus far.

Citations: BRAZIL: Amazonas: Krukoff 6279 (Br--isotype, F--373492--isotype, K--isotype, K--isotype, N--type, S--isotype).

VITEX KYULENII Standl., Trop. Woods 8: 6. 1926.

Synonymy: Vitex stenoloba Standl. ex Moldenke, Prelim. Alph. List Invalid Names 52, in syn. 1940. Vitex kylenii Standl. apud Matuda, Am. Midl. Nat. 44: 576, sphalm. 1950. Vitex longeracemosa Pittier, in herb.

Literature: Standl., Trop. Woods 8: 6. 1926; Moldenke, Alph. List Common Names 4 & 12. 1939; Moldenke, Geogr. Distrib. Avicenn. 14--16. 1939; Moldenke, Carnegie Inst. Wash. Publ. 522: 203. 1940; Moldenke, Prelim. Alph. List Invalid Names 52. 1940; Yuncker, Field Mus. Publ. Bot. 9: 330. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 19--21 & 103. 1942; Moldenke, Alph. List Invalid Names 55. 1942; Moldenke, Phytologia 2: 120. 1944; H. N. & A. L. Moldenke, Pl. Life 2: 67. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 34, 36, 37, & 201. 1949; Matuda, Am. Midl. Nat. 44: 576. 1950; Miranda, Veget. Chiapas 263, 391, & 392. 1953.

A shrub or medium-sized or even large tree, to 13 m. tall, with a large dense crown of foliage; trunk to 26 cm. in diameter, fairly straight; wood hard, easy to work, brown, close-grained; branchlets medium-slender, obtusely tetragonal, often slightly wrinkled in drying, gray, lenticellate, glabrate; twigs slender, short, acutely tetragonal or compressed, rather densely puberulent, less so or glabrescent in age, brown or buff; nodes obscurely annulate; principal internodes 0.7--3 cm. long; leaf-scars large, rather corky, somewhat prominent; leaves decussate-opposite, 3--5-foliolate, mostly 5-foliolate; petioles slender, 3.5--7 cm. long, convex beneath, conspicuously flattened and submargined above, very minutely puberulent or glabrate, not noticeably ampliate at the base, somewhat disciform or club-shaped at the apex; leaflets mostly unequal in size (rarely subequal), the

two lowermost often much reduced, all petiolulate on petiolules that are slender or rather stout, minutely pulverulent-puberulent or glabrous, deeply canaliculate and margined, and 3--12 mm. long, those of the lower leaflets usually shorter than those of the central ones; leaflet-blades coriaceous or chartaceous, rather firm when mature, rich-green above and pale grass-green beneath when fresh or rather uniformly light-green on both surfaces when mature, darker or subbrunnescent above and lighter beneath in drying when immature, the central ones elliptic, 7--23 cm. long, 2.3--9.5 cm. wide, acute or short-acuminate at the apex, sometimes long-acuminate (rarely obtuse or emarginate), entire or often slightly undulate along the margins, acute or somewhat attenuate-subacuminate at the base, glabrous and shiny on both surfaces or obscurely pulverulent-puberulent on the larger venation beneath and on the midrib above; midrib slender, flat above, prominent beneath; secondaries slender, 8--12 per side, arcuate-ascending, usually rather irregular, subprominent above, prominent beneath, irregularly arcuate-joined some distance from the margins; vein and veinlet reticulation abundant, fine, subprominent on both surfaces or only the larger portions beneath; inflorescence axillary, paniculate, elongate, rather sparse, 15--27 cm. long, 2.5--5 cm. wide, erect, composed of 2--7 rather irregular, opposite or subopposite, rather long-stalked cymes, the cymes irregular, 1--3 times dichotomous, rather loosely few-flowered; peduncles slender or stoutish, dull-purplish with dull pale-green tones when fresh, brownish or buff in drying, lenticellate, often somewhat compressed, 6--10 cm. long, minutely and rather sparsely puberulent, glabrescent in age; rachis similar to the peduncle in color, shape, texture, and puberulence, the sympodia elongate and irregular; pedicels slender, about 1 mm. long, densely puberulent; bracts few, caducous, simple, elliptic, stipitate, 1--2 cm. long; bractlets and prophylla linear, 1--3 mm. long, puberulent; flowers sweetly odorous; calyx campanulate, dull gray-green with lilac tones when fresh, about 4.5 mm. long, puberulent, its 5 lobes narrowly triangular-oblong, about 2 mm. long, spreading or reflexed, subacute at the apex; corolla varying from blue or light-blue to violet or purple, sometimes described as "light-blue and white", "blue and yellow", or "whitish outside and blue within", on close inspection the upper half faded gray-lilac and the lower half with its lateral lobes lilac and the large middle lobe purple with violet around the top, sparsely puberulent outside, its tube about 6 mm. long and 3.5 mm. in diameter, the limb about 1 1/4 mm. wide, villous in the throat; filaments lilac; anthers purple-blue; fruiting-calyx patelliform, about 1 cm. wide; fruit hard, depressed-spherical, about 7 mm. long and 11 mm. wide, smooth, yellow.

The type of this species was collected by Henry Kuylen (G. 55; Yale School of Forestry 3397) -- in whose honor it is named -- at Entre Ríos, Izabal, Guatemala, in 1926, and is deposited in the United States National Herbarium at Washington. Johnson says that the flowers are "faintly odorous". Schipp is responsible for the statement that it is a large or medium-sized tree, with

a large dense crown of foliage, growing along river banks in partial shade, but also in open places, the flowers sweetly odorous, and the wood brown, hard, and close-grained. He reports the species as "rare" or "occasional". The "200 ft. diam." on the Schipp 994 labels must surely be an error of transcription for 200 feet altitude. Standley says that the tree is common in Izabal. Three-foliolate leaves are seen on Standley 53238 in the Arnold Arboretum herbarium.

The species inhabits thickets and wet thickets, acahual, hilly pine forests, and rocky headlands, forests, pastures, stream banks, and open places, and has been found by collectors in partial shade on river banks, in open places along creek banks, and near beaches, ascending from sea-level to 200 meters altitude. It has been found in flower from April to June and in fruit in July and August. It is closely related to V. hemsleyi Briq. and has been confused with it in the past. The S. Watson 385 collection cited below may have come from Chiquimula or even Zacapa, as its labels are not specific. Miranda reports that the species is "Arbol muy semejante al vashcabté (ver éste). En selvas altas subdeciduas de la región indicada". Common names reported for it are "barabás", "barbás", "flor azul", "tapisaguatè", "tapisahuatè", and "tapisajuatè".

The Gentle 1721 distributed by Standley as this species is really something bignoniaceous, as is indicated by the densely lepidote character of its twigs, petioles, and lower leaf-surfaces, while Gentle 1756, also distributed by him as this species, is really V. gaumeri Greenm. (the anomalous form represented also by the Hummel collections at Kew, apparently from sterile shoots). The Steyermark 39129 and P. C. Standley 69563 in the Chicago Natural History Museum herbarium, distributed as V. kuylenii, are not verbenaceous.

Citations: MEXICO: Guerrero: L. H. MacDaniels 243 (Ba, F--337800, N). GUATEMALA: Baja Verapaz: S. Watson 385 (G, W--1323359). Izabal: H. V. Johnson 306 (F--707759, La, W--1081367); Kuylen G.66 [Herb. Yale School Forest. 8897] (F--573831--isotype, G--isotype, N--isotype, N--photo of type, W--1266025--type, Y--isotype, Z--photo of type); Steyermark 38921 (F--1059792); Wendland 25 (Cp, W--1284723). BRITISH HONDURAS: Gentle 2376 (Lh, Mi, Mi, N); Kluge 25 [Mus. Yale School Forest. 7579] (Y); Peck 920 (B, G); Schipp 994 (A, Bm, Ca--498410, Cb, E--1033570, F--661865, K, Mi, N, N, S), 1309 (A, Cb, E--107967, F--733661, G, Mi, N, S). HONDURAS: Atlántida: P. C. Standley 54255 (A, F--583561, W--1408200); Yuncker, Koepper, & Wagner 3370 (Dp, F--944386, Mi, N, S).

VITEX KWANGSIENSIS P'ei, Mem. Sci. Soc. China 1 (3): 93--94. 1932.

Literature: P'ei, Mem. Sci. Soc. China 1 (3): 93--94, pl. 20. 1932; Hill, Ind. Kew. Suppl. 9: 297. 1938; Worsdell, Ind. Lond. Suppl. 2: 500. 1941; Moldenke, Known Geogr. Distrib. Verbenac.,

[ed. 1], 57 & 103 (1942) and [ed. 2], 132 & 201. 1949.

Illustrations: P'ei, Mem. Sci. Soc. China 1 (3): pl. 20. 1932.

Apparently a tree; branches and branchlets glabrous; leaves 2--4-foliolate, usually 3-foliolate; petioles 1.5--3.5 cm. long; petiolules 2--10 mm. long; leaflet-blades chartaceous, ovate to lanceolate, varying from acute or acuminate to subrotund at the apex, entire, acute at the base, glandulose beneath, pubescent above especially along the venation, the central ones 3--6.5 cm. long and 2--3.5 cm. wide, the lateral ones smaller but sometimes approximating the central one; secondaries 6--9 per side, prominent beneath; inflorescence paniculate, terminal, 6--10 cm. long, lax, subglabrous; calyx 2.5 mm. long, glabrous, its rim regularly 5-toothed; corolla yellow, pubescent on the outside, sparsely pilose within, its tube about 6 mm. long, its lobes 5, subequal, the median one about 5 mm. long and 4 mm. wide; stamens exerted; filaments hairy on the lower half; style glabrous; stigma bifid; ovary glabrous.

The species is based on Morse 617, collected at Lungchow, Kwangsi, China, and deposited in the Britton Herbarium at the New York Botanical Garden. It is known only from the original collection. It resembles V. quinata (Lour.) F. N. Will., but differs in its glabrous calyx and its 2--4-foliolate leaves.

VITEX KWEICHOWENSIS P'ei, Sinensia 2 (4): 71--74, figs. 1 & 2. 1932.

Literature: P'ei, Sinensia 2 (4): 71--74, figs. 1 & 2. 1932; P'ei, Mem. Sci. Soc. China 1 (3): pl. 22. 1932; Hill, Ind. Kew. Suppl. 9: 297. 1938; Merr. & Walker, Bibl. Eastern As. Bot. 382. 1938; Fedde, Bot. Jahresber. 59 (2): 417. 1939; Worsdell, Ind. Lond. Suppl. 2: 500. 1941; Moldenke, Known Geogr. Distrib. Verb-enac., [ed. 1], 57 & 103 (1942) and [ed. 2], 132 & 201. 1949.

Illustrations: P'ei, Sinensia 2 (4): 72 & 73, figs. 1 & 2. 1932; P'ei, Mem. Sci. Soc. China 1 (3): pl. 22. 1932.

Tree, 3--15 m. tall; trunk 25--28 cm. in diameter; bark pale- or dark-gray; branches and branchlets pubescent, with bright-yellow glands; leaves 3--5-foliolate; petioles cylindrical, 8--10 cm. long, densely pubescent; petiolules on central leaflets about 1.5 cm. long, on lateral leaflets 2--3 mm. long; leaflet-blades ovate or ovate-lanceolate, usually broadest toward the base, deep-green above, light- or pale-green beneath when fresh, short-acuminate at the apex, entire or with obscure serration, subrotund at the base, densely pubescent and glandulose above and beneath, the central ones 10--16 cm. long and about 3 cm. wide; secondaries prominent beneath, 9 or 10 pairs in the central leaflets, 5--7 pairs in the lateral leaflets; panicle terminal, large, about 22 cm. long and 21 cm. wide; pedicels about 2 mm. long; calyx greenish when fresh, about 2 mm. long, densely pubescent and glandulose outside, glabrous within, its rim 5-dentate, 2-lipped; corolla varying from white to whitish or light-yellow, 5-lobed, 2-lipped, the 2 upper lobes densely pubescent and glandulose outside and sparsely pubescent within, the lower median lobe larger, about 5 mm. long, its tube about 6 mm.

long, pubescent and glandulose outside, pubescent at the insertion of the stamens within; filaments greenish, sparsely pubescent; anthers horseshoe-shaped, 2-celled, rusty-yellow; style glabrous, slightly surpassing the stamens; stigma bifid; ovary pubescent at the apex; fruit drupaceous, greenish, ovoid, about 15 mm. in diameter, glabrous.

The species is based on Tsiang 6317, collected in dense woods, at an altitude of 700 meters, at Yao-ren-shan, Sanhoa, Kweichow, China, on August 7, 1930, and is deposited in the herbarium of the Biological Laboratory of the Science Society of China at Nanking.

The species is found in open places by the sides of streams and in dense woods at altitudes of 500--700 meters, blooming in July and August, in fruit in August. It is related to V. quinata (Lour.) F. N. Will. and to V. canescens Kurz, differing from the former in the dense pubescence on the lower leaflet-surfaces, and from the latter in its broadly ovate or ovate-lanceolate leaflets that are subtund at the base, its larger flowers, its shorter calyx-teeth, and its smaller fruit.

The original description of the species is on a page dated "1931" and the cover says "Oct. 1931 -- Feb. 1932", but Merrill & Walker assert that the correct date for the entire work is 1932. Hill, however, gives the date as 1931.

Citations: CHINA: Kweichow: Tsiang 5831 (N, S).

VITEX LACINIOSA Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 225. 1863.

Synonymy: Vitex laciniata Turcz. ex Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39 & 103, sphalm. 1942 [not V. laciniata Hort., 1940, nor Host., 1947].

Literature: Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 225. 1863; Moldenke, Prelim. Alph. List Invalid Names 51. 1940; Moldenke, Alph. List Invalid Names 53. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39 & 103. 1942; Moldenke, Alph. List Invalid Names Suppl. 1: 29. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 95 & 201. 1949.

Tree, with compressed-tetragonal branches, densely rufescent-tomentose throughout; leaves long-petiolate, 3-foliolate, densely rufescent-tomentose throughout, the leaflets obovate-oblong, obtuse and mucronulate or rather acute at the apex, entire or subrepand and inconspicuously denticulate, long-attenuate at the base, petiolulate, scabrous above with appressed hairs, cinereous and more densely pilose especially along the venation beneath; cymes axillary, bifid, densely rufescent-tomentose throughout, half as long as the petiole, with a solitary flower in the dichotomy; bracts linear, exceeding the flowers; calyx-teeth equaling the tube, slightly shorter than the corolla-tube.

The type of this species was collected by Aribert Heinrich Hermann Kegel (no. 12319) somewhere in Bahia, Brazil. The species is known only from the type collection, which, unfortunately, has not yet been seen by me. All that I know of it is the description by Turczaninow given above and his comment that it is

closely related to and similar to V. polygama Cham., but differs from this well-known species in its much denser tomentum, especially on the top ["tergo"] surface of the leaflets, and in its corollas being twice as long as the calyx. His original publication of the name was "Vitex (pyrostoma) laciniosa". He says "Vitex tota pilis rufescentibus tecta" at the start of his diagnosis, so I am assuming this to mean that the branches, twigs, petioles, leaflets, and inflorescences are so clothed, although his more specific description of the upper and lower leaflet-surface is confusing. It is possible that the species may prove to be conspecific with V. rufescens A. L. Juss., also known from Bahia.

VITEX LAMTANA Pieper in Engl., Bot. Jahrb. 62, Beibl. 141

["142"]: 42, 55, & 83, hyponym (1928); Fedde, Repert. Spec. Nov. 26: 161--162. 1929.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 42, 55, & 83. 1928; Pieper in Fedde, Repert. Spec. Nov. 26: 161--162, 1929; Hill, Ind. Kew. Suppl. 8: 249. 1933; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 50 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 68. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 117, 118, & 201. 1949.

Shrub; branchlets tetragonal, rufous-puberulent; leaves 3-foliolate; petioles 3--5 cm. long; leaflet-blades ovate, acuminate at the apex, sometimes crenate-serrate along the margins, remotely glandulose on both surfaces toward the base, puberulent on the venation beneath, the central ones 5--8 cm. long and 3--5 cm. wide, cuneate at the base, the lateral ones 4--7 cm. long and 2.5--4 cm. wide, obliquely cordate at the base; inflorescence terminal, paniculate, subspiciform, more or less puberulent and glandulose; pedicels very short; bractlets linear, surpassing the pedicels; calyx campanulate, about 3 mm. long, glandulose on the outside and with a few eglandular hairs interspersed, more or less bilabiate, its rim irregularly 5- (rarely 4-) toothed; corolla more or less curvate, pubescent on the outside, about 6 mm. long, the lobes glandulose, the upper lip entire or slightly incised; ovary globose, about 0.6 mm. wide, glabrous; fruit pisiform, drupaceous, shiny, 5--7 mm. wide, fulvous, surpassing the dilated fruiting-calyx, the mesocarp thin.

The species is based on Endlich 777 from Mount Kilimandjaro, Tanganyika Territory. Pieper places it in his Subsection Quadrilobatae, stating that the corolla-limb has its upper lip not lobed or only very slightly emarginate. He reduces Lam's genus Viticipremna to synonymy under this subsection of Vitex. For V. lamiana he cites also Hildebrandt 2524, Holst 446 & 500, Endlich 777a, Merker 714, and Stuhlmann 3559 from Tanganyika Territory and Fries 1988, Scott-Elliot 6417, and Thomas 100 from Kenya.

VITEX LANCEOLATA Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 224. 1863.

Literature: Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 224.

1863; Jacks., Ind. Kew. 2: 1214. 1895; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 64 & 103 (1942) and [ed. 2], 144 & 201. 1949.

I know nothing about this species except that Turczaninow states that it is a member of the Section Eugagnus and has branches that are tetragonal and glabrous; leaves opposite, "sessile", lanceolate, long-attenuate at the base, entire, glabrous; panicle very slightly puberulent, dichotomous from the base, surpassing the leaves; calyx 5-dentate, shorter than the corolla; corolla cylindric; and stamens included.

The species is based on Öring II.90 from Java and is known only from the original collection. Turczaninow does not state if the leaves are 1- or more-foliolate. If his statement that the leaves (rather than the leaflets) are sessile is correct, it would be a most unusual condition in this genus. I personally doubt whether the species is a valid one, but, having no evidence to the contrary, I cannot reduce it. It is hoped that the type collection may eventually become available to me for examination.

VITEX LANIGERA Schau. in A. DC., Prodr. 11: 695. 1847.

Synonymy: Chrysomallum lanuginosum Boj. ex Schau. in A. DC., Prodr. 11: 695, in syn. 1847.

Literature: Schau. in A. DC., Prodr. 11: 695. 1847; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 78 & 83. 1928; Moldenke, Alph. List Invalid Names 13. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 53 & 103 (1942) and [ed. 2], 123 & 201. 1949.

Shrub or tree, to 10 m. tall, with a trunk that is whitish, 3--4 m. tall and to 30 cm. in diameter; branches and branchlets rather stout, gray, obtusely tetragonal, often lichen-encrusted, often canaliculate-sulcate, densely lanate-tomentose with sordid-canescens or flavescent hairs on the youngest parts, soon glabrescent; nodes not annulate; principal internodes abbreviated, 4--20 mm. long on the branchlets, to 5 cm. long on older branches; leaves decussate-opposite, 3--5-foliolate, mostly 5-foliolate; petioles stout, 3--6.5 cm. long, densely lanate-tomentose with sordid-canescens or flavescent divergent hairs when young, the tomentum shorter and more fulvous in age; petiolules stout, those of the lowest leaflets mostly obsolete, those of the central leaflets 2--13 mm. long, densely flavescent-tomentose; leaflet-blades unequal, the 2 lowest usually much smaller than the other 3, the central ones obovate-elliptic or elliptic, firmly chartaceous, rather uniformly dark-green on both surfaces or slightly brunnescens when young, more gray-green and very rough-bullate above when mature, 6--14.5 cm. long, 3--6.8 cm. wide, varying from rounded or subemarginate to acute or very shortly acuminate at the apex, entire on mature plants, mostly coarsely dentate except at the very base on young plants, cuneate or acute at the base or (on the lowest leaflets) rounded or even asymmetric, velutinous-pubescent above when young, less so and scabrous in age, very densely lanate-tomentose beneath with flavescent tomentum; midrib slender and impressed above, very stout and

rounded-prominent beneath; secondaries slender, 8--12 per side, arcuate-ascending, impressed above on mature leaves, reaching the margins but not anastomosing, prominent beneath; veinlet reticulation very abundant, deeply impressed above and prominent beneath on mature leaves; inflorescence axillary, cymose, appearing with the young leaves but shorter than they are and after the old leaves have usually fallen, few-flowered, twice dichotomous, very densely villous-tomentose throughout with ferruginous-flavescent or golden silky hairs; peduncles medium-stoutish, 1--1.5 cm. long; cyme-branches less than 1 cm. long; bractlets lanceolate, about 7 mm. long, thick-textured; calyx herbaceous, campanulate, about 8 mm. long and 7 mm. wide, its rim 5-toothed, the teeth ovate-triangular, about 2 mm. long, erect or reflexed, glabrous inside; corolla white or pinkish, cylindrical, slightly incurved or almost straight, its tube 1--1.5 cm. long, 3--10 mm. wide at the ampliate apex, densely flavescent-villous on the outside, the lobes 5--6 mm. long, rounded at the apex, villous outside, glabrous within; stamens and style exerted about 1 cm.; fruiting-calyx indurated, campanulate, 12--14 mm. long, closely investing the fruit, rather loosely canescent-tomentose, the lobes broadly ovate, about 5 mm. long and wide, acute at the apex.

The species is based on an unnumbered Bojer collection from the province of Emirna, Madagascar. It is said to inhabit granite and laterite soils from altitudes of 600 to 1500 meters, blooming from September to December. A common name is "hazombondra". It is said by Pieper to be related to V. fischeri Gürke and to V. keniensis Turrill. It differs from V. waterloti Danguy in its few-flowered inflorescences and much smaller bracts, and from V. pachyclada J. G. Baker in its much smaller flowers and its stalked inflorescences.

Citations: MADAGASCAR: Baron 3381 (K); Bojer s.n. [prov. Emirna] (K--isotype, N--photo of isotype, P--isotype, Z--photo of isotype); Bouton s.n. [Chasek River] (K, N--photo, Z--photo); Humbert 2964 (P), 11205 (P), 11603 (P); Perrier de la Bâthie 1494 (N, P); A. Seyrig 15 [Herb. Jard. Bot. Tananarive 6121] (P, P), 15 bis (P); Viguier & Humbert 1397 (P).

VITEX LASIANTHA H. Mallier, Meded. Rijks Herb. Leid. 37: 50. 1913.

Literature: H. Mallier, Meded. Rijks Herb. Leid. 37: 50. 1913; H. J. Lam, Verbenac. Malay. Arch. 201 & 369. 1919; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 67 & 103 (1942) and [ed. 2], 149 & 201. 1949.

Tree, to 23.5 m. tall; branchlets cinereous; leaves 3-foliate; petioles 3.5--4.5 cm. long, subglabrous; petiolules 1.2--2.7 cm. long; leaflet-blades coriaceous, lanceolate or lanceolate-obovate, 15.5--20 cm. long, 4.3--7 cm. wide, cuneate or subobtusate at the apex, entire, acute or subattenuate at the base, completely glabrous on both surfaces; secondaries 8 or 9 per side; inflorescence paniculate, much as in Teijsmanniodendron bogoriense but usually no more than 2 peduncles per node, to 20 cm. long, minutely pubescent throughout, the individual cymules

on stalks about 1 cm. long; bractlets caducous; pedicels 1--3 mm. long; calyx campanulate, 1--1.5 mm. long, densely tawny-pubescent, its rim 5-dentate, the teeth rather large and deltoid; corolla white, densely tawny-pubescent on the outside except for the lower part of the tube, the tube 3--4 mm. long, villous at the throat within, its limb with 4 lobes 1.5 mm. long, pubescent on both surfaces, and a lip 3 mm. long, villous on the inner surface; filaments slender, pubescent, about 1.5 mm. long, exerted; style about equaling the stamens; stigma shortly bifid; ovary globose, glabrous except for the minutely villous apex.

The type of this species was collected by Jan Willem Reinier Koch (no. 514) somewhere in southwestern Dutch New Guinea in 1904 or 1905 and is deposited in the Euitenzorg herbarium. It is said to be related to V. quinata (Lour.) F. N. Will. [V. heterophylla Roxb.] and is known only from the original collection.

Citations: NEW GUINEA: Dutch New Guinea: J. W. R. Koch 514 (Bz--24246--type, N--isotype, N--photo of type, Z--photo of type).

VITEX LASTELLEI Moldenke, Phytologia 3: 438--439. 1951.

Shrub or tree; branchlets medium-slender, obtusely tetragonal, often shallowly sulcate between the angles, densely villosuloustomentellous on the younger parts, the hairs yellowish- or brownish-ferruginous, becoming less so or even glabrescent in age; twigs flattened, very densely villosulous or tomentellous with yellowish- or brownish-ferruginous hairs; nodes annulate; principal internodes variable in length, 1--9.5 cm. long; leaves decussate-opposite, 1-foliolate; petioles rather slender, 1--1.5 cm. long, flattened and canaliculate above, densely villosulous-hirsute with yellowish hairs or tomentellous with brownish-ferruginous hairs; blades chartaceous, uniformly bright-green on both surfaces, shiny above, elliptic, 4.5--14.5 cm. long, 2--5.5 cm. wide, short-acuminate at the apex, entire, acute at the base, more or less sparsely pilose above, more densely pubescent beneath (especially on the larger venation); midrib slender, impressed above, very prominent beneath; secondaries slender, 5--8 per side, arcuate-ascending, impressed above, sharply prominent beneath, conspicuously anastomosing in shallow loops several mm. from the margins; veinlet reticulation rather abundant, the larger parts impressed above and prominent beneath; inflorescence axillary, sessile, glomerate, rather few-flowered; peduncles and pedicels obsolete; bractlets completely hidden by the pubescence; calyx campanulate, 3--4 mm. long, 4--5 mm. wide, very densely villous, its rim 5-toothed; corolla cylindric, arched, about 1 cm. long, densely villous on the outside, the lobes 1--2 mm. long, erect; stamens and pistil exerted about 5 mm. from the corolla-tube; fruiting-calyx cupuliform, about 5 mm. long and 8 mm. wide, very densely villous with brownish or ferruginous hairs, its rim rather shallowly 5-toothed; fruit drupaceous, oblong, 3--10 mm. long, about 6 mm. wide, not fleshy, glabrous, shiny.

The type of this species was collected by M. de Lastelle (marked "A" on the label) somewhere in Madagascar in 1941, and is

deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris.

Citations: MADAGASCAR: Lastelle A (N--isotype, N--photo of type, P--type, P--isotype, Z--photo of type); Louvel 47 (P); Perrier de la Bâthie 4437 (P).

VITEX LEANDRII Moldenke, Phytologia 3: 439--440. 1951.

Shrub 4--5 m. tall; branchlets rather stoutish, gray, densely appressed-puberulent with sordid-yellowish hairs on the youngest parts, soon glabrescent; nodes not annulate; principal internodes 2--4 cm. long; leaf-scars very large, circular, flattened, not at all elevated; buds very small; leaves decussate-opposite, 3--5-foliolate; petioles rather stoutish, conspicuously flattened above, 4--7 cm. long, appressed-puberulent with sordid-yellowish hairs; petiolules slender, irregular in length, those on the central leaflets to 16 mm. long, those on the lateral leaflets 3--4 mm. long, appressed-puberulent; leaflet-blades thin-chartaceous or submembranous, brunnescent in drying, broadly elliptic, apparently about 8--9 cm. long and 4.5--5.5 cm. wide, apparently obtuse or rounded at the apex (but most of the leaflets on the type specimen appear to be abnormal at the apex), entire, rounded and often asymmetric at the base, glabrous above, more or less pilosulous-puberulent beneath, more densely so on the larger venation; midrib slender, flat above, prominent beneath; secondaries filiform, 8--10 per side, divaricate-ascending, rather straight, flat above, prominulous beneath, irregularly and inconspicuously arcuate-joined in many small loops near the margins beneath; veinlet reticulation mostly obscure above, only the largest parts subprominulous beneath; inflorescence axillary, about equaling the subtending petioles, rather few-flowered, very lax and open, dichotomously cymose; peduncles compressed, 2--2.5 cm. long, rather densely appressed-puberulent with sordid-flavescenscent hairs, brunnescent in drying; cyme-branches elongate, brunnescent in drying, flattened, 6--8 mm. long, rather sparsely appressed-puberulent; pedicels filiform, 5--6 mm. long, brunnescent, sparsely puberulent; bractlets numerous, conspicuous, foliaceous, elliptic-oblongate, 8--15 mm. long, 2--5 mm. wide, glabrate above, densely yellowish-puberulent beneath, the uppermost ones linear, 5--6 mm. long and about 1 mm. or less wide; calyx campanulate, herbaceous, brunnescent in drying, about 8 mm. long, somewhat zygomorphic, rather densely appressed-puberulent with sordid-yellowish antrorse hairs outside, deeply 2-lipped to about the middle, 3 of the lobes more or less connate and 4 mm. long, the other 2 lobes separate, ovate, attenuate-acute at the apex, about 3 mm. long; corolla tubular, small, incurved, densely appressed-villous with sordid-silvery antrorse hairs, the tube about 1 cm. long, about 4 mm. wide at the apex, the lobes minute, about 1 mm. long; stamens and pistil exerted about 8 mm. from the corolla-mouth; fruiting-calyx enlarged, campanulate, to 1 cm. long, brunnescent, appressed-puberulent, deeply lobed and irregularly split; fruit drupaceous, globose, 6--7 mm. long and wide, glabrous, shiny, wrinkled in drying.

The type of this species was collected by Jacques Leandri (no. 550) -- in whose honor it is named -- at Andranoboka, Tsingy du Bemaraha, 9th Reserve, Madagascar, on November 21, 1932, and is deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris. The species is known thus far only from the original collection.

Citations: MADAGASCAR: Leandri 550 (N--isotype, N--photo of type, P--type, Z--photo of type).

VITEX LEBRUNI Moldenke, Phytologia 4: 62--63. 1952.

Shrub, about 5 m. tall; branches slender, dark-brown, cinereous-pilousulous on the younger parts; nodes not annulate; principal internodes very variable in length, 1--7.5 cm. long; leaves palmately compound, decussate-opposite, 3--5-foliolate; petioles very slender or medium-stout, 4--8.5 cm. long, minutely strigillose, glabrescent in age, narrowly canaliculate above, somewhat ampliate or club-shaped at the apex; leaflets sessile or subsessile, uniformly dark-green on both surfaces or somewhat lighter beneath, glabrous on both surfaces, the central one somewhat larger than the rest, narrow-elliptic, 3--13 cm. long, 1.3--3.3 cm. wide, acuminate at the apex, entire, acute or cuneate at the base; midrib slender, flat above, prominulous beneath; secondaries filiform, about 5 per side, distant, arcuate-ascending or spreading, anastomosing near the margins, flat or obscure above, prominulous beneath; veinlet reticulation very sparse, plane or obscure above; inflorescence axillary, shorter than the subtending petiole, cymose, few-flowered, strigillose throughout; peduncles filiform, about 1 cm. long; bractlets filiform, about 3 mm. long; pedicels 1--1.5 mm. long, strigillose; calyx campanulate, about 2 mm. long and wide, strigillose, its rim subtruncate, short-denticulate; corolla rose-ochraceous, very densely strigose-pubescent outside, about 1 cm. long; fruit oblong, yellow-orange, shiny.

The type of this species was collected by Jean Lebrun (no. 5303) -- in whose honor it is named -- in a forest at 1282 meters altitude between Walikole and Kolele, Belgian Congo, in March of 1932, and is deposited in the herbarium of the Jardin Botanique de l'Etat at Brussels. The species is known thus far only from the original collection.

Citations: BELGIAN CONGO: Lebrun 5303 (Br--type, Br--isotype, N--isotype, N--photo of type, Z--photo of type).

VITEX LEHMBACHII Gürke in Engl., Bot. Jahrb. 33: 297. 1904.

Literature: Gürke in Engl., Bot. Jahrb. 33: 297. 1904; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 43, 56, & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 68. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 114 & 201. 1949.

Tree, to 8 m. tall; branches glabrous; leaves 5-foliolate; petioles 12--18 cm. long, glabrous, shallowly canaliculate above; petiolules 5--10 mm. long; leaflet-blades thick-herbaceous, oblong-obovate, acuminate at the apex with an acumen 10--15 mm.

long, entire or sometimes sparsely serrate along the margins, cuneate-attenuate into the petiolules at the base, glabrous on both surfaces, the central ones to 24 cm. long and 10 cm. wide, mostly 2 1/2 to 3 times as long as wide, the lateral ones somewhat smaller, the basal ones to 11 cm. long and 5 cm. wide; inflorescence axillary in the upper leaf-axils, in the form of rather lax dichasia (2-branched cymes); peduncles 14--16 cm. long; bractlets sessile, linear, 5--7 mm. long at the lower furcations, smaller above, long-acuminate, finely downy; pedicels 2--3 mm. long, downy; calyx turbinate, about 5 mm. long, sparsely appressed-pilose, its rim 5-toothed, the teeth deltoid, about 1.5 mm. long and wide (at the base), acute at the tip; corolla dull rose-colored with the anterior lobe white, its tube scarcely surpassing the calyx, subglabrous, the lobes appressed-pilose on the outside.

This species is based on Lehmbach 11 -- in whose honor it is named -- which was collected in bush country at Buea, at an altitude of 960 meters, Cameroons, in April of 1897, where the species is said to be abundant, just coming into bloom in April. It resembles V. yaundensis Gürke in its long-pedunculate inflorescences, but its calyxes are less densely and more appressedly pubescent and the leaflet-secondaries are less numerous. Pieper cites, in addition to the type, Conrad 166 and 170 and Reder 687, 1087, and 1384, all from Cameroons.

VITEX LEUCOXYLON L. f., Suppl. Pl. 293. 1781 [not V. leucoxyylon Roxb., 1814, nor Span., 1856, nor Schau., 1893].

Synonymy: Wallrothia leucoxyylon Roth, Nov. Pl. Sp. 317. 1821.

Vitex leucoxyylon L. ex Wall., Numer. List [48], no. 1748, sphalm. 1829. Vitex saligna Roxb. ex Wall., Numer. List [48], no. 1748, in syn. 1829. Vitex rheedii Kostel., Allg. Med.-pharm. Fl. 3: 826. 1834. Vitex leucoxyylon var. albiflora Span. ex Hook., Comp. Bot. Mag. 1: 349, nom. nud. 1836. Vitex leucoxyylon Wall. apud Schau. in A. DC., Prodr. 11: 692, in syn. 1847. Vitex tomentosa Wight, in herb. [not V. tomentosa Pav., 1940, nor Sessé & Moc., 1940, nor Rich., 1941]. Wallrothia tomentosa Wight, in herb.

Literature: Rheede, Hort. Mal. 4: pl. 36. 1683; L. f., Suppl. Pl. 293. 1781; Roth, Nov. Pl. Sp. 317. 1821; Blume, Bijdr. 14: 813. 1826; Wall., Numer. List [48], no. 1748. 1829; Roxb., Fl. Ind. 3: 74. 1832; Kostel., Allg. Med.-pharm. Fl. 3: 826. 1834; Hook., Comp. Bot. Mag. 1: 349. 1836; Blanco, Fl. Filip., ed. 1, 516. 1837; Schau. in A. DC., Prodr. 11: 692. 1847; Wight, Ic. Pl. Ind. Or. 4: pl. 1467. 1849; Miq., Fl. Ind. Bat. 2: 864. 1856; Miq., Fl. Ind. Bat. Suppl. 1: 242. 1860; J. G. Baker, Fl. Maurit. 256. 1877; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 587. 1885; E. D. Merr., Bur. Gov. Lab. Philipp. Bull. 27: 68. 1905; Talbot, For. Fl. Bombay 2: 355. 1911; H. J. Lam, Verbenac. Malay. Arch. 190, 194, 204, 208--209, & 369. 1919; Bakh. & Lam, Bull. Jard. Bot. Buitenz., sér. 3, 4 (2): 285. 1922; Moldenke, Geogr. Distrib. Avicenn. 40. 1939; Moldenke, Prelim. Alph. List Invalid

Names 51, 52, & 54. 1940; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 1], 55, 56, 61, 64, 75, & 103. 1942; Moldenke, *Alph. List Invalid Names* 53, 55, & 57. 1942; H. F. MacMillan, *Trop. Plant. & Gard.*, ed. 5, 197. 1943; Moldenke, *Phytologia* 2: 120. 1944; Razi, *Journ. Mysore Univ.* 7 (4): 64. 1946; H. N. & A. L. Moldenke, *Pl. Life* 2: 78. 1948; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 128--130, 139, 144, 165, & 201. 1949; Razi, *Journ. Mysore Univ.* 11 (2): 54. 1950.

Illustrations: Rheede, *Hort. Mal.* 4: pl. 36. 1683; Wight, *Ic. Pl. Ind. Or.* 4: pl. 1467. 1849; Talbot, *For. Fl. Bombay* 2: 355. 1911.

Large or moderate-sized tree with spreading crown; trunk to 5 cm. in diameter; branches and branchlets slender, light-gray or whitish, more or less obtusely tetragonal, glabrate; twigs slender, brunnescent in drying, more or less minutely puberulent; nodes rather indistinctly annulate, not swollen; principal internodes 1--4 cm. long; leaves decussate-opposite, abundant, 3--5-foliolate; petioles slender, 2.5--6.5 cm. long, flattened above, not noticeably canaliculate nor margined nor ampliate at the base, varying from appressed yellow- or brown-pubescent to sparsely and very minutely puberulent or glabrate; petiolules very slender, the central one conspicuously longer, 1.4--2.5 cm. long, canaliculate and margined, varying from appressed yellow- or brown-pubescent to sparsely puberulent or glabrate, the lateral ones 1--2 cm. long, the basal ones (if present) 1--2 mm. long; leaflet-blades thin-chartaceous, rather uniformly bright-green on both surfaces or lighter beneath, varying from oblong or elliptic to oblong-elliptic, usually obtuse or acute at the apex, sometimes rounded or (according to Lam) long-acuminate, entire or sparsely dentate above the middle with irregular and blunt closely appressed teeth, minutely puberulent or pubescent along the larger venation on both surfaces or glabrate, densely pubescent beneath when young and sparsely so when mature (according to Lam), eglandular, the central one 3.5--14.5 cm. long, 1--4.5 cm. wide, acute or more or less attenuate-subacuminate at the base, the lateral ones 5.5--9.5 cm. long, 3--4.5 cm. wide, mostly inequilateral at the base, the basal ones (if present) 2.5--5 cm. long, 1.5--2.5 cm. wide, mostly inequilateral at the base; midrib slender, plane or impressed above, rounded-prominent beneath; secondaries slender, 5--14 per side, arcuate-ascending, making an angle of almost 90° with the midrib, prominent on both surfaces, arcuate-joined near the margins; vein and veinlet reticulation abundant, subprominent on both surfaces or plane, sometimes obscure; inflorescence axillary, cymose, 3--17 cm. long and wide, developing after the leaves, lax, loosely many-flowered, abundantly dichotomous-furcate with divaricate branches, up to 6 times di- or subtrichotomous, varying from appressed yellow- or brown-pubescent to minutely puberulent or glabrate throughout; peduncles very slender, 1.3--7.5 cm. long; pedicels 0.5--2 mm. long; calyx cupuliform, sparsely appressed-puberulent on the outside, glabrous within, its tube about 2 mm. long, its rim 5-toothed, the teeth equal, deltoid, about 0.5 mm. long;

corolla very irregular, white, with a purplish blush in the throat or with a pale-violet tinge, occasionally pure and wholly white or with a slight yellowish tinge, glabrous for the lowest 1 mm., otherwise appressed-pubescent on the outside, its tube about 4.5 mm. long, densely villous inside from the insertion of the stamens to the throat, the upper lip 2-lobed, the lobes about 2.5 mm. long, acute, glabrous within, the lower lip 3-lobed, its lateral lobes rounded, about 2.5 mm. long, glabrous within, the midlobe about 3.5 mm. long, sinuate along the margins, densely villous or bearded with violet hairs within, usually marked with a large purplish spot; stamens inserted about 1 mm. from the base of the corolla-tube, slightly exserted; filaments thickened and villous toward the base, glabrous above; anther-cells divergent; style somewhat surpassing the stamens; stigma shortly bifid; ovary globose, glabrous; fruit "green", 12--15 mm. long, about 12 mm. wide.

The type of this species is the "König 77" specimen so labeled in the Linnean Herbarium at the Linnean Society in London. This is genus 811 [790], sheet 5, and is inscribed "Leucoxydon" in the handwriting of the younger Linné and bears a ticket by König reading "Vitex. Foliis quinatis integerrimis. Baccis monospermis. Habitat in vastis sylvis" and a notation in the handwriting of the younger Linné "König 77".

The species is, thus, an inhabitant of dense forests, but MacMillan, in the reference cited above, states that it is common in dry regions, especially near "tanks", and is a valuable timber tree. He says that it is called "nebedda" when growing as a shrub, and "kaddunochchi" when growing as a tree. Simpson reports that it is called "nir-nochchi" in Ceylon. Santapau found it in streambeds and on rocks in watercourses, with "the roots penetrating directly and entirely the rock". The species has been collected in anthesis from February to April and in June and September, and in fruit from April to June and in September. Razi records it from Mysore and refers to it as a mesophanerophyte according to the life-form classification of Raunkiaer. Lam records it from Ceylon, the Malay Peninsula, and Java, but his Malayan record is obviously based on Griffith 6062 from Burma and I have seen only cultivated material thus far from Ceylon and Java. The specimen in the Meisner Herbarium labeled "Wallrothia leucoxydon" is actually Evodia aromatica Blume of the Rutaceae. The Hohenacker 451 collection cited below was inscribed "Vitex n. sp." by Miquel.

Cotype collections of V. saligna are Wallich 1748-1, cultivated in the Botanical Garden at Calcutta, and Wallich 1748-2 from Heyne's herbarium. The type of V. tomentosa Wight and Wallrothia tomentosa is Wight 2326.

Citations: INDIA: Bastar: Koelz 22393 (Bv, N). Bombay: J. Fernandez 183 (Xa); Herb. Blatter 27442 (Xa), 27443 (Xa), 27444 (Xa), 27462 (Xa); Hohenacker 451 [Herb. Reichenbach f. 68374] (Cp, S, V, V); Santapau 142.18 (Xa), 142.29/174 (Xa), 388 (Xa), 436 (Xa), 1984 (Xa), 1985 (Xa), 2107 (Xa), 3824 (Xa), 4083 (Xa),

4389 (Xa), 4390 (Xa), 8842 (N), 10823 (Xa), 10824 (Xa); Stocks, Law, et al. s.n. [Malaban, Concan, &c.] (L, S). Lahore: R. N. Parker 13657 (S). Madras: Wight 2326 (S), s.n. [Carnatic] (Br). State undetermined: Hugel 2777 ["Asia"] (V); König 77, in part [Herb. Linnaeus G.811, S.5] (Ls--type, N--photo of type, S--photo of type, Z--photo of type); Wallich 1748-2 (Cb, N--photo, Z--photo). BURMA: Upper Burma: Griffith 6062 (S). CEYLON: N. D. Simpson 8508 (N). CULTIVATED: Ceylon: Gardner s.n. (K); Petch s.n. [16.5.1922] (Ba, N). India: Herb. Hort. Bot. Calcutt. s.n. (Br, Ed, Mu--674, Mu--1134, X); Lushington s.n. (K); Voigt s.n. [H. B. Seramp.] (Cp, Cp, Cp); Wallich 1748-1 [1748] (Cb, N--photo, T, Z--photo), s.n. (Cp). Java: Herb. Hort. Bot. Bogor. XI.K.4 (Bz--26606, Bz--26607, N).

VITEX LIMONIFOLIA Wall., Numer. List [48], no. 1754, hyponym.

1829; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 584. 1885.

Synonymy: Vitex alata Schau. apud C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 584, in syn. 1885 [not V. alata Willd., 1803, nor Roxb., 1803, nor Heyne, 1821, nor Royle, 1940, nor Wall., 1947]. Vitex ampaila Griffith ex Moldenke, Alph. List Invalid Names 52, in syn. 1942. Vitex limoniifolia Wall. ex Moldenke, Alph. List Invalid Names 53, in syn. 1942.

Literature: Roth, Nov. Pl. Sp. 316. 1821; Wall., Numer. List [48], nos. 1752 & 1754. 1829; Schau. in A. DC., Prodr. 11: 685. 1847; C. B. Clarke in Hook. f., Fl. Brit. Ind. 4: 584. 1885; Hook. f. & Jacks., Ind. Kew. 2: 1213. 1895; Moldenke, Geogr. Distrib. Avicenn. 40. 1939; Moldenke, Prelim. Alph. List Invalid Names 49. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 55, 59, 60, 75, & 103. 1942; Moldenke, Alph. List Invalid Names 52 & 53. 1942; Moldenke, Alph. List Invalid Names Suppl. 1: 28. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 129, 137, 138, 165, & 201. 1949.

Medium-sized tree; branchlets rather stout, obtusely tetragonal and sulcate (in drying), densely pubescent with fulvous or griseous hairs, the younger parts often nigrescent in drying; pith large, white, tetragonal, solid; nodes plainly annulate; principal internodes about 6.5 cm. long; leaves decussate-opposite, 3-foliolate; petioles rather stout, 8.8--14.3 cm. long, densely pubescent like the branchlets, often nigrescent in drying, very broadly and conspicuously winged, the wings 6--8 mm. wide at their widest point (usually at or very near the apex), venose, similar to the leaflet-blades in texture, color, and pubescence; petiolules obsolete or to 1 mm. long, very densely fulvous-pubescent; leaflet-blades subequal or the lateral ones somewhat smaller, chartaceous, rather uniformly dark-green on both surfaces, the central one elliptic, 14.5--19.4 cm. long, 7.3--9.2 cm. wide, acute or short-acuminate at the apex, entire, rather short-acuminate at the base, minutely short-pubescent or puberulent with scattered hairs above (more densely pilose on the midrib), densely short-pubescent with fulvous or ferruginous

hairs beneath and usually also densely resinous-dotted with silvery dots, the lateral ones similar in all respects but often slightly smaller; midrib rather stout or slender, flattened and usually densely pilose above, rounded-prominent beneath; secondaries very slender, 12--22 per side, close together, regular, arcuate-ascending, rather obscurely arcuate-joined near the margins, flat above, prominent beneath; tertiaries very conspicuous beneath, very numerous and more or less parallel, joining the secondaries, issuing at right angles to the secondaries, prominent beneath; veinlet reticulation rather abundant, obscure above, rather plain beneath; inflorescence axillary, paniculate, the panicles 25--32 cm. long, erect, with 1 or 2 ascending or erect branches, the flowers borne in rather distant, many-flowered, conspicuously bracteate, sessile or subsessile whorls; peduncles slender, 14--20 cm. long, similar to the branchlets in color, shape, and pubescence, but much more slender; rachis and sympodia similar to the peduncles in all respects; bracts foliaceous, elliptic, 6--11 mm. long, 3--5 mm. wide, densely fulvous-pubescent on both surfaces, sessile, acute at the apex, 2 subtending each branch and each whorl of flowers; bractlets similar but smaller, numerous among the flowers; pedicels obsolete or very short and pubescent; corolla purple.

The species is based on Wallich 1754 from Prome, in Upper Burma. It has been collected in anthesis in August and has been misidentified in herbaria as V. pubescens Vahl. The V. alata of Heyne, of Royen, and of Willdenow are actually the juvenile form of V. altissima L. f., that of Wallich is V. peduncularis Wall., and that of Roxburgh is V. peduncularis var. roxburghiana C. B. Clarke.

Citations: BURMA: Upper Burma: Herb. Burma Forest School 5:5 (S), 23 (M), 27 (N). THAILAND: Herb. Royal Forest Dept. Siam 15 (N); Pierre 5216 (S). CULTIVATED: India: Herb. W. Griffith s.n. [Hort. Bot. Calcutt.] (K, N, N--photo, Z--photo).

VITEX LINDENI Hook. f., Bot. Mag. 102: pl. 6230. 1876.

Synonymy: Vitex lindeni Hook. f., in herb.

Literature: Hook. f., Bot. Mag. 102: pl. 6230. 1876; Hook. f. & Jacks., Ind. Kew. 2: 1214. 1895; Moldenke, Geogr. Distrib. Avicenn. 40. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 75 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 69. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 165 & 201. 1949.

Illustrations: Hook. f., Bot. Mag. 102: pl. 6230 (colored). 1876.

Shrub or small shrubby tree; stem erect; branches very spreading, cylindric, covered with white bark, leafy toward the apex; branchlets slender, the younger ones cano-puberulent with a fine gray-hoary pubescence; twigs very slender, subterete, light-gray, the youngest parts densely appressed short-pubescent or puberulent with gray hairs, the pubescence wearing off in age; nodes not noticeably ampliate nor annulate; principal internodes vari-

able in size, 0.3--5.5 cm. long; leaf-scars sessile, rather large, with corky margins; buds densely short-pubescent; leaves decussate-opposite or subopposite, 3--5-foliolate; petioles slender or very slender, 2--7.5 cm. long, rather densely puberulent with appressed grayish hairs, rather deeply canaliculate above, convex beneath, somewhat ampliate at the base; petiolules 1--4 mm. long or obsolete, deeply canaliculate-margined and appressed-puberulent like the petioles; leaflet-blades unequal in size, membranous or thin-membranous, often sessile or subsessile, rather uniformly dark-green on both surfaces or pale-green when fresh, the central one elliptic or elliptic-obovate, 4--6.6 cm. long, 1.7--2.9 cm. wide, abruptly short-acuminate at the apex, usually as long as or longer than the petiole, entire or obscurely subsinuate along the margins, short-acuminate at the base, glabrous on both surfaces except for the short-pilose midrib above, the lateral ones similar in all respects but smaller; midrib very slender, flat or slightly subimpressed above, prominent beneath; secondaries very slender, 8--12 per side, ascending, rather straight, forked near the margins and the branches arcuately joined, flat above, very slightly prominent beneath; vein and veinlet reticulation rather obscure or slightly subprominent above; inflorescence cano-puberulent with fine gray-hoary pubescence; cymes axillary, long-pedunculate, capitate, 3--6-flowered, opposite; peduncles very slender, naked, much longer than the petioles; flowers sessile or very short-pedicellate; bractlets minute, borne at the apex of the pedicels; calyx cylindrical-campanulate, about 3 mm. long, hoary-puberulent, its rim 5-dentate with short equal teeth; corolla externally pale-violet, streaked with purple within, its tube 3 times as long as the calyx, its limb flat, about 1.6 cm. wide, pale-violet, the lips very spreading, the upper one with 2 small, convex, broadly ovate, obtuse lobes, the lower one with 3 larger, convex, orbicular lobes; stamens slightly exerted; filaments inserted in a ring of hairs in the corolla-tube; anthers blue, the thecae divergent, the connective globose; stigma 2-lobed, the lobes subulate; ovary obovoid, sessile, slender; fruiting-calyx and fruit not known.

The species is based on a specimen cultivated in the Palm House at the Royal Botanic Gardens at Kew and collected there in April of 1876, deposited in the Kew herbarium. The seed was received from Linden, presumably from somewhere in Colombia, in 1872, and the plant was growing at Kew at least until 1876. It is said by Hooker to be very closely related to V. capitata Vahl and to V. schomburgkiana Schau., differing from the former in its much shorter and broader leaflets without caudate apices, and from the latter in the lack of the soft tomentum on the leaves and branchlets, and from both in its more cylindrical calyx. At Kew it flowered in May. The actual type specimen, cited below, greatly resembles V. compressa Turcz., but is sterile.

Citations: CULTIVATED: England: Herb. Hort. Kew. s.n. [4/76]
(K--type, N--photo of type, Z--photo of type).

VITEX LOBATA Moldenke, Phytologia 3: 440--441. 1951.

Shrub, about 2 m. tall; branches and branchlets very slender, very obtusely subtetragonal or subterete, light-gray, minutely puberulent or glabrescent, twiggy; twigs very slender, grayish, densely puberulent; nodes not annulate; principal internodes very variable in size, 0.3--5 cm. long; leaves decussate-opposite, 1-foliolate; petioles filiform, 5--10 mm. long, minutely puberulent; blades membranous [or firmly chartaceous in age?], brunnescent in drying, lighter beneath, elliptic or ovate, 1--3.5 [--8?] cm. long, 7--17 [--40?] mm. wide, shiny when mature, acute or obtuse at the apex, mostly obtuse or rounded [varying to acuminate-cuneate?] at the base, irregularly lobed or incised-dentate along the margins, very lightly and minutely puberulous and rather densely resinous-punctate on both surfaces [becoming glabrous in age?]; midrib very slender, flat above, slightly prominulous beneath; secondaries 3--5 per side, arcuate-ascending, mostly indiscernible above and slightly subprominulous beneath [or conspicuous and subprominulous on both surfaces?]; veinlet reticulation mostly indiscernible [or conspicuous and subprominulous in age?] on both surfaces; inflorescence axillary, 1-flowered; peduncles filiform, 1--1.5 cm. long, minutely puberulent; pedicels filiform, 8--12 mm. long, minutely puberulent; bractlets one pair, linear-setaceous, at the apex of the peduncle, 1--1.5 mm. long, minutely puberulent; calyx campanulate, 2--3 mm. long and wide, minutely puberulous and resinous-punctate on the outside, its rim minutely 5-denticulate; corolla wine-red, its tube 1.5--1.8 cm. long, greatly arched, densely puberulent on the outside, the lobes about 3 mm. long; stamens exerted about 5 mm. from the corolla-tube; fruiting-calyx patelliform, about 2 mm. long and 6 mm. wide, more or less pulverulent and resinous-punctate, the rim truncate, very minutely apiculate.

The type of this very distinct species was collected by Henri Humbert and Charles Fletcher Swingle (no. 5639) in the lower valley of the Mandrare, east of Ambovombe, Madagascar, in September of 1928, and is deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris. A sheet of loose leaves, Perrier de la Bâthie 10276 bis, is referred here tentatively. The leaves are firmly chartaceous and shiny, to 3 cm. long and 4 cm. wide, acuminate-cuneate at the base, glabrous on both surfaces, and with the secondaries and veinlet reticulation conspicuous and subprominulous on both surfaces.

Citations: MADAGASCAR: Humbert & Swingle 5639 (N--isotype, N--photo of type, P--type, Z--photo of type); Perrier de la Bâthie 10276 bis (P).

VITEX LOBKOWITZII Ettingsh., K. Akad. Wiss. Wien Denkschr. 28: 219 [Fossile Flora Bilin 2: 31--32], pl. 37, fig. 4. 1868.

Literature: Ettingsh., K. Akad. Wiss. Wien Denkschr. 28: 219 [Fossile Flora Bilin 2: 31--32], pl. 37, fig. 4. 1868; Engelhardt, Nova Acta K. Leopold-Carolus-deutsch. Akad. Naturf. 38: 362, pl. 18, fig. 15. 1876; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 75 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life

2: 70. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 166 & 201. 1949.

Illustrations: Ettingsh., K. Akad. Wiss. Wien Denkschr. 28: 219 [Fossile Flora Bilin 2: 31], pl. 37, fig. 4. 1868; Engelhardt, Nova Acta K. Leopold-Carolus-deutsch. Akad. Naturf. 38: 362, pl. 18, fig. 15. 1876.

Leaves compound, petiolate, 1-foliolate; leaflets coriaceous, obovate, subobliquely acute at the base, entire or remotely and obtusely denticulate near the apex, the venation brochidodrome, the midrib prominent, straight, the secondaries distinct, arcuate-subflexuous, remote, the lower ones making an angle of 40° — 50° , the middle and upper ones an angle of 70° — 80° with the midrib, the segments of the secondaries oblong, "arcubus laquerum prominentibus maculis externis instructis"; tertiaries distinct, simple or furcate, issuing at an acute angle on the outer and at an obtuse angle at the inner side, joined to each other, forming oblong segments; quaternaries numerous, issuing at a straight angle on both sides, including a very slender network.

Ettingshausen states that this fossil is well preserved, with the venation visible to the finest detail. He conducted an extensive search through about 32 families and genera, and, while he found many leaves that looked similar, he found only in Vitex details of venation which matched perfectly those of the fossil. He feels that among unifoliolate species the leaves of V. cofasus Reinw. of the Moluccas and V. gardneriana Schau. of Brazil come closest to those of the fossil. Among the modern species with more leaflets than one per leaf and the leaflets long-petiolulate he found the closest matches in V. orinocensis H.B.K. of Venezuela, V. lucens T. Kirk of New Zealand, and V. doniana Sweet of Guinea. Among species with many leaflets and these short-petiolulate or sessile, he found the closest matches in V. vauthieri P. DC. of Brazil, V. umbrosa Sw. of Jamaica, and V. triflora Vahl of Amazonian South America.

The type specimen is preserved in the Lobkowitz Museum at Bilin. Engelhardt states that he found four fragments of these leaves in a large piece of tufa, lying in such close juxtaposition as to lend strong support to the theory that they formed part of a single palmately compound leaf with 4 leaflets. The horizon is Miocene and the place of collection is Bilin, Bohemia.

VITEX LOKUNDJENSIS Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 51, 71, & 83, hyponym (1928); Fedde, Repert. Spec. Nov. 26: 165. 1929.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 51, 71, & 83. 1928; Pieper in Fedde, Repert. Spec. Nov. 26: 165. 1929; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48 & 103 (1942) and [ed. 2], 114, 120, & 201. 1949; Wild, South. Rhodes. Bot. Dict. 137. 1954.

Shrub; branchlets scarcely angular, more or less compressed, glabrous; leaves 5-foliolate; petioles 8--12 cm. long; petiolules distinct, to 1.5 cm. long; leaflet-blades herbaceous, cuneate-

obovate, 9--15 cm. long, 4--5 cm. wide, short-acuminate at the apex, glabrous; secondaries prominent above; inflorescence axillary, dichasial, with elongated internodes, lax, about 10 cm. long, 10--15 cm. wide, glabrous throughout; bractlets small, subulate, glabrous; calyx campanulate, about 3 mm. long and 2 mm. wide, glabrous, its rim truncate and entire or indistinctly denticulate; corolla geniculate, about 3 times as long as the calyx, sparsely appressed-pilose on the tube, more densely so on the lobes outside, the upper lip erect, shortly bilobed, style gibbous at the base, short-pilose, articulate with the ovary, curvate-erect; ovary obpyriform or short-lageniform, with a crown of hairs at the apex.

The species is based on Zenker 3899 from Bipinde, Cameroons, and is deposited in the herbarium of the Botanisches Museum at Berlin. The fruit is said by Wild to be edible. He also records the common names "gubvudiro" and "umbindoio" from Southern Rhodesia. The species is said to inhabit savannas, where it is a tall tree to 30 meters tall and quite common, ascending to 1200 or 1500 meters altitude. It has been confused in herbaria with V. milanjiensis Britten.

Citations: CAMEROONS: Zenker 3899 (Af--isotype, N--isotype, N--photo of isotype, N--photo of isotype, S--isotype, Z--photo of isotype, Z--photo of isotype). BELGIAN CONGO: Herman 2257 (Br, Br, Br, N); Lebrun 5935 (Br, Br). TANGANYIKA TERRITORY: E. M. Bruce 774 (Br, N); Schlieben 1681 (N, S). SOUTHERN RHODESIA: N. C. Chase 435 [Govt. Herb. S. Rhodesia 19250] (N, N).

VITEX LOKUNDJENSIS var. KRUCKEI Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 71 & 83. 1928.

Synonymy: Vitex lokundjensis var. kruckii Pieper ex Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49, sphalm. 1942. Vitex kruckei Pieper ex Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 115, aphalm. 1949.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 71 & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48, 49, & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 67. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 114, 115, & 201. 1949.

The variety differs from the typical form of the species in its longer leaflets and the somewhat denser pubescence on the pedicels and calyx.

It is based on Krucke 14 from Edea, Cameroons, deposited in the herbarium of the Botanisches Museum at Berlin. Pieper cites with a question also Dupuis s.n. from Isle de Princes in Lower Congo, a specimen consisting only of leaves.

VITEX LONGIPETIOLATA Gürke in Engl., Bot. Jahrb. 33: 295. 1904.

Literature: Gürke in Engl., Bot. Jahrb. 33: 295. 1904; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 46, 60, & 83. 1929; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48 & 103 (1942) and [ed. 2], 114 & 201. 1949.

Tree, 8--12 m. tall; crown wide-spreading, much branched; leaves 5-foliolate; petioles 15--20 cm. long, canaliculate above, glabrous or scattered-pilose; petiolules 5--15 mm. long, sparsely pilose; leaflet-blades membranous, dark-green and shiny above, lanceolate, usually 3 times as long as wide, very long-acuminate at the apex, entire, cuneate at the base and attenuate into the petiolule, glabrous or subglabrescent above, yellow-glandulose beneath and pubescent along the larger venation, the central ones 10--15 cm. long and 4--5 cm. wide, the lateral ones smaller, the basal ones often only 5--10 cm. long and 2--3 cm. wide; inflorescence in the upper leaf-axils, to 25 cm. long, lax, composed of several dichasia, the branches glabrous or with only widely scattered hairs; peduncles to 12 cm. long; bractlets filiform, 3--5 mm. long on the upper inflorescence-branches, longer on the lower ones but there caducous; fruiting-calyx broadly cupuliform; fruit obovate, 25--30 mm. long, black.

The species is based on Zenker 1888 from the primeval forest at Bipinde, Cameroons, collected in August of 1898 and deposited in the herbarium of the Botanisches Museum at Berlin. The species is said by Gürke to be a member of the section Chrysomallum and to be related to V. dinklagei Gürke and to V. zenkeri Gürke.

Citations: CAMEROONS: Zenker 1888 (S--isotype), 3185 (S).

VITEX LONGISEPALA King & Gamble, Kew Bull. 1908: 112--113. 1908.

Literature: King & Gamble, Kew Bull. 1908: 112--113. 1908; King & Gamble, Journ. As. Soc. Beng. 74: 853. 1909; H. J. Lam, Verbenac. Malay. Arch. 202--203 & 369. 1919; Moldenke, Suppl. List Common Names 7, 9, 10, 13, 17, & 23. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 60, 61, & 103. 1942; Moldenke, Phytologia 2: 120. 1944; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 138--140 & 201. 1949.

Small or moderate-sized tree; branchlets obscurely tetragonal, densely tawny-pubescent; leaves 3-foliolate; petioles 5--15 cm. long, tawny-pubescent; petiolules on central leaflets 0.6--2 cm. long, obsolete on lateral ones; leaflets membranous, the central one largest and petiolulate, the lateral ones subsessile, 10--30 cm. long, 5--15 cm. wide, ovate or elliptic-ovate, abruptly caudate-acuminate at the apex, entire, sparsely glandular-hispid on the upper surface, tawny-pubescent and glandulose on the lower surface, the central ones acuminate or cuneate at the base, the lateral ones varying from rounded or cordate to acute and asymmetric at the base; secondaries 8--15 per side; inflorescence densely tawny-pubescent, cymose, axillary, opposite, 2.5--6.2 cm. long, usually di- or trichotomous; main peduncles usually 2; bracts narrow-lanceolate, 0.6--1.3 cm. long, persistent; pedicels about 2.5 cm. long; calyx campanulate, about 8.5 mm. long, villous with golden-brown hairs, its rim 5-lobed, the lobes oblong-lanceolate, about 6 mm. long; corolla primrose-yellow, its tube slender, infundibular, 10--12 mm. long, yellow-glandulose, 2-lipped, with a sparse ring of hairs on the inner surface at the insertion of the stamens about 4 mm. above the base, the upper lip shortly bilobed with rounded lobes, the lower lip 3-lobed,

the lateral lobes reflexed and the central lobe twice as long as the side lobes, narrowed below, broadened and fimbriate above; stamens exerted; filaments slender, glabrous; stigma bifid; ovary conic, densely yellow-glandulose at the apex; fruit drupaceous, ovoid, about 7.5 mm. long, black, smooth, glandulose

The species is based on Curtis 275 from Penang and on Curtis s.n., Goodenough 10488, King's Collector 460, Ridley 7595 and 9723, Scortechini 100, 113, and 340, and Wray 1319 from Perak. Common names recorded for the species are "flowery lēban", "gading kahua", "halban", "hearth-frame plant", "kahua", "lēban bunga", "lēban kunyit", "lēban nasi", "pokok galang dapur", and "tumeric lēban".

Citations: MALAYA: Negri Sembilan: Holttum 9807 (Bz--24252, N, N--photo, Z--photo).

VITEX LUCENS T. Kirk, Trans. New Zeal. Inst. 29: 525. 1897.

Synonymy: Vitex littoralis A. Cunn., Ann. Nat. Hist., ser. 1, 1: 461. 1838 [not V. littoralis Decne., 1834]. Vitex glabrata F. Muell. apud Hook. f. & Jacks., Ind. Kew. 2: 1213, in syn. 1895 [not V. glabrata R. Br., 1810]. Vitex litoralis A. Cunn. apud Stapf, Ind. Lond. 6: 479. 1931. Vitex novae-zeelandiae (Cunn.) H. J. Lam, in herb.

Literature: R. Br., Prodr. 512. 1810; Decne., Nouv. Ann. Mus. Paris 3: 401. 1834; A. Cunn., Ann. Nat. Hist., ser. 1, 1: 461. 1838; Hook., Ic. Pl. 5: pl. 419 & 420. 1842; F. Muell., Fragm. 5: 35--36. 1865--1866; T. Kirk, For. Fl. New Zeal. pl. 105. 1889; Harris, New Zeal. Berries [pl. 1]. 1894; Hook. f. & Jacks., Ind. Kew. 2: 1213. 1895; T. Kirk, Trans. New Zeal. Inst. 29: 525. 1897; Cheeseman, Man. New Zeal. Fl. 565. 1906; Bol. Ort. Bot. Palermo 6: pl. 2. 1907; Laing & Blackwell, Fl. New Zeal., ed. 2, 351. 1907; Van Wijk, Dict. Plantnames 1: 420. 1911; Cheeseman, Ill. New Zeal. Fl. 2: pl. 161. 1914; E. H. Wils., Arn. Arb. Exped. Africa, India, etc. 1920-22, pl. Y-463. 1923; Laing & Blackwell, Fl. New Zeal., ed. 3, 286. 1927; Cockayne & Turner, Trees New Zeal. 126. 1928; Stapf, Ind. Lond. 6: 479. 1931; Moldenke, Geogr. Distrib. Avicenn. 40. 1939; Moldenke, Alph. List Common Names 23 & 25. 1939; Moldenke, Prelim. Alph. List Invalid Names 50 & 51. 1940; Worsdell, Ind. Lond. Suppl. 2: 500. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 70, 75, & 103. 1942; Moldenke, Alph. List Invalid Names 53. 1942; Moldenke, Phytologia 2: 120. 1944; G. T. Hastings, Trees Santa Monica 105. 1944; Maunsell von Rensselaer, Trees Santa Barbara, rev. ed., 154. 1948; Menninger, Evergr. Trees Street Plant. [3]. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 155, 165, & 201. 1949; R. B. Wylie, Am. Journ. Bot. 41: 186--187. 1954; Moldenke, Journ. Calif. Hort. Soc. 15 (3): 36. 1954.

Illustrations: Hook., Ic. Pl. 5: pl. 419 & 420. 1842; T. Kirk, For. Fl. New Zeal. pl. 105. 1889; Harris, New Zeal. Berries [pl. 1] (colored). 1894; Bol. Ort. Bot. Palermo 6: pl. 2. 1907; Laing & Blackwell, Fl. New Zeal., ed. 2, 351. 1907; Cheeseman, Ill. New Zeal. Pl. 2: pl. 161. 1914; E. H. Wils., Arn. Arb. Exped.

Africa, India, etc. 1920-22, pl. Y-463. 1923; Laing & Blackwell, Pl. New Zeal., ed. 3, 286. 1927; Cockayne & Turner, Trees New Zeal. 166. 1928.

Tree; branchlets slender, grayish-brown, often prominently lenticellate with large and corky lenticels, obtusely tetragonal or compressed, minutely puberulent, glabrescent in age; young twigs often somewhat ampliate at the nodes and brunnescent in drying; nodes distinctly annulate; principal internodes 1.5--9.5 cm. long; leaves decussate-opposite, 3--5-foliolate; petioles slender or stout, 4.5--10 cm. long, flattened above and slightly canaliculate toward the apex, slightly ampliate at the base, more or less finely puberulent; petiolules slender, 0.4--3.2 cm. long, subequal (when 3) or the lateral ones slightly shorter, the 2 basal ones (on 5-foliolate leaves) very short, all very minutely puberulent or subglabrate, margined; leaflet-blades thin-chartaceous, dark- or bright-green above, somewhat lighter beneath, shiny, often brunnescent in drying, elliptic or broadly elliptic, the central ones 4.5--13.6 cm. long, 2.2--7.7 cm. wide, acute or short-acuminate at the apex, entire or somewhat crinkly-margined, acute or obtuse and often inequilateral at the base, somewhat pulverulent or glabrous on both surfaces; midrib slender, mostly plane above, rounded-prominent beneath; secondaries very slender, 4--12 per side, often rather distant, irregular, plane or sub-prominent above, prominent beneath, arcuate-joined near the apex, ascending, not much arcuate; vein and veinlet reticulation abundant, the larger portions subprominent on both surfaces; inflorescence axillary only, appearing after the leaves; cymes very loosely many-flowered, brachiate with numerous divaricate furcations, to 8 cm. long and 12.5 cm. wide; peduncles rather stoutish, flattened, to 2.5 cm. long, finely pulverulent or puberulent; corolla red or pink, about 2.5 cm. long, 2-lipped.

Du Rietz states that this is a big tree, found in mixed rain-forests. Davison says that it is found abundantly from North Cape to Waika, but sparingly farther south on North Island, New Zealand. It is attacked, even when alive, by the larvae of the puriri moth (Hepialus virescens), which bores galleries through the wood. It has been collected in anthesis from January through March, July, and August to October, and in fruit in August and December. Hastings reports that in California it blooms in spring or summer. In Santa Monica he has found the tree on both streets at the corner of Arizona Avenue and 16th Street, by the office of Dr. Hubert Wilken, and in the yard at 2515 La Mesa Way.

Common names recorded for the tree are "kauere", "neuseeländisches teak", "Neuseelandteak", "New Zealand oak", "New Zealand teak", "New Zealand teak tree", "puriri", "puririholz", and "puriri tree". In Hawaii V. quinata (Lour.) F. N. Will. has been confused with this species.

Wylie reports that the leaflet-blades are 219 μ thick -- the lower epidermis 13 μ , the upper epidermis 26 μ , the mesophyll palisade tissue 70 μ , the mesophyll spongy tissue 106 μ , the tissue ratio 1.4, the vein spacing 140 μ , the upper and lower cuticles each 2 μ , and that there is no upper or lower hypodermis.

Citations: NEW ZEALAND: North Island: Berggren s.n. [Octobri 1874] (S), s.n. [Decemb. 1874] (Go); Carse s.n. [Kaiaka, July 1908] (Gg--192744, N, S); Cheeseman s.n. [Sept. 1879] (Pa); R. M. Davison s.n. [August 1945] (S); Du Rietz & Du Rietz 2777 (Go, S); Herb. Prager 18679 (Gg--31483); Hombron s.n. [1841] (Pa); T. Kirk s.n. [Pokenoe] (Sg--16034); Meebold 4872 (N); F. Mueller s.n. [N. Zealand] (Bz--24482); D. Petrie 75 (Na--10731); C. Skottsberg s. n. [20.I.1938] (Go); Wilkes, U. S. Exploring Exped. s.n. (T). CULTIVATED: Austria: Herb. Hort. Bot. Vindob. s.n. [21.2.94] (Vu), s.n. [7 Aug. 1898] (Vu). California: Bailey & Bailey 9579 (Ba, N--photo, Z--photo); S. F. Blake s.n. [Golden Gate Park, 3 Aug. 1927] (Ar--19765); Eastwood s.n. [Golden Gate Park, Oct. 1919] (A, Gg--31470); Epling & Ahlstrom s.n. [Jan. 26, 1938] (La); Nafie, Reynolds, & McClintock 178 (La); Walther 176 (A, N), s.n. [Berkeley, March 1922] (A, Gg--31471), s.n. [Golden Gate Park, Feb. 1927] (Gg--145221, N). England: Forsberg s.n. [1850] (S). New Zealand: M. J. A. Simpson 8027 (Z).

VITEX LUNDENSIS Gürke in Engl., Bot. Jahrb. 18: 168. 1893.

Literature: Gürke in Engl., Bot. Jahrb. 18: 168. 1893; J. G. Baker in Thiselet.-Dyer, Fl. Trop. Afr. 5: 327--328. 1900; Durand, Syllog. Fl. Congol. 437. 1909; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 52, 73, & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49 & 103 (1942) and [ed. 2], 115 & 201. 1949.

Shrub; branchlets glabrous; leaves 5-goliolate; petioles elongate; leaflet-blades distinctly stalked, coriaceous, oblong-lanceolate, 17.5--20 cm. long, 5--6 cm. wide, acute at the apex, entire, narrowed to the base, glabrous on both surfaces; cymes long-stalked, axillary, lax; pedicels short; bractlets subulate; calyx 4--6 mm. long, ferruginous-tomentose, its teeth short, deltoid; corolla white, ferruginous-tomentose on the outside, its tube about twice the length of the calyx; stamens scarcely exerted.

The type of this species was collected by Karl Pogge (no. 1260) along the Lulua River in Lunda, Belgian Congo, and is deposited in the herbarium of the Botanisches Museum at Berlin. The species is known only from the type collection. The binomial name was published in December, 1893 [not in 1894, as it is usually cited], according to a note by Rolfe on a sheet of Clerodendrum triplinerve Rolfe in the Kew herbarium and a note by N. E. Brown on a sheet identified as Vitex flavescens Rolfe in the same herbarium.

VITEX LUTEOGLANDULOSA H. J. Lam, Verbenac. Malay. Arch. 199. 1919.

Literature: H. J. Lam, Verbenac. Malay. Arch. 199 & 369. 1919; H. J. Lam in Engl., Bot. Jahrb. 59: 93. 1925; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 67 & 103 (1942) and [ed. 2], 149 & 201. 1949.

Tree; branchlets obscurely tetragonal, minutely pubescent and

glandulose, glabrescent in age; leaves 3--5-foliolate; petioles 4--8 cm. long, subglabrous; leaflet-blades chartaceous, ovate or ovate-oblong, entire, subglabrous and very minutely papillose above, very densely glandular-punctate beneath and pubescent on the veins, the central ones 4.5--13 cm. long and 4--5.6 cm. wide, the lateral ones 6--10.5 cm. long and 3.5--5 cm. wide, acute at the apex and attenuate at the base like the central ones, the basal ones 1--2.5 cm. long and 5--13 mm. wide, cuneate at the apex and base; petiolules 1--2 cm. long and central leaflets, 3--6 mm. long on lateral and 1--2 mm. long on basal leaflets; secondaries 3--11 on central leaflets, 6--10 on lateral and 5 or 6 on basal leaflets; inflorescence paniculate, terminal or the lower ones axillary, 14--20 cm. long, 11--12 cm. wide, minutely pubescent and glandulose, glabrescent in age; calyx cupuliform, about 2.5 mm. long and wide, sparsely glandular-pubescent, its rim obtusely 5-toothed; corolla minutely puberulent and glandulose except for the lower part of the tube and the margins of the median lobe of the lower lip, densely villous in the throat, the tube about 4 mm. long, the limb 5-lobed, the large lobe about 3 mm. long, villous within, the 4 smaller lobes about 1 mm. long, obtuse, glabrous; stamens included; filaments minutely puberulent; style short, truncate (?) at the apex; ovary glabrous.

The type of this species was collected by Friedrich Richard Rudolf Schlechter (no. 16593) near Wabbe, at 250 meters altitude, in Northeastern New Guinea, on September 29, 1907. The species is well characterized by the densely glandulose lower surface of the leaflets. If the stigma is really truncate, as suggested by Lam, it would be most unusual in the genus. The species is known thus far only from the type collection.

VITEX LUZONICA H. J. Lam, Bull. Jard. Bot. Buitenz., ser. 3, 3: 61--62. 1921.

Literature: H. J. Lam, Bull. Jard. Bot. Buitenz., ser. 3, 3: 61--62. 1921; H. J. Lam, Bull. Jard. Bot. Buitenz., ser. 3, 5: 175. 1922; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 1], 63 & 103 (1942) and [ed. 2], 142 & 201. 1949.

Tree; branchlets glabrous, acutely tetragonal; leaves 3-foliolate; petioles 7--8.5 cm. long, glabrous; leaflets chartaceous, ovate, dark above in drying and gray beneath, short-acuminate at the apex, entire, broadly cuneate at the base, glabrous on both surfaces, the lateral ones 8.5--10.5 cm. long, 4.6--6.4 cm. wide, and borne on petiolules 1.3--2.1 cm. long, the central one 9.5--12 cm. long, 4.5--7 cm. wide, and borne on a petiolule 1.4--2 cm. long; secondaries 3--11 per side; inflorescence axillary, solitary or binary, foliose at the base, forming a large panicle to 13.5 cm. long and 6 cm. wide; bracts none; pedicels slender, 1--5 mm. long; calyx cupuliform, about 1 mm. long, subglabrous, truncate; corolla glabrous on the outside, sparsely glandulose, minutely rigid-barbate in the throat, with rigid hairs at the stamen insertion, its tube subcylindric, 4--4.5 mm. long, the 4 smaller lobes rotund and 1--1.5 mm. long, the larger lobe about 3.5 mm. long and 3 mm. wide; stamens didynamous, exserted, in-

serted near the base of the corolla-tube; style exerted, about 7.5 mm. long; stigma very shortly bifid; ovary glabrous.

The type of this species was collected by George Patrick Ahern (no. 706 Q) in Luzon, Philippine Islands, and is deposited in the Herbarium Bogoriense at Buitenzorg. In the original publication Lam cites this collection as "760", but he corrected it to "706" in his 1922 note, cited above, after E. D. Merrill called his attention to the typographic error.

Citations: PHILIPPINE ISLANDS: Luzon: Ahern 706 Q (Bz--24253--type, N--isotype, N--photo of type, Z--photo of type).

VITEX MACROFOLIOLA Moldenke, nom. nov.

Synonymy: *Vitex macrophylla* H. J. Lam, Verbenac. Malay. Arch. 212. 1919 [not *V. macrophylla* R. Br., Prod. Fl. Nov. Holl. 1: 512. 1810, nor Anon., 1927, nor Hort., 1940].

Literature: R. Br., Prod. Fl. Nov. Holl. 1: 512. 1810; H. J. Lam, Verbenac. Malay. Arch. 169, 212, & 370. 1919; H. J. Lam in Engl., Bot. Jahrb. 59: 93. 1925; Horticulture, ser. 2, 5: 350. 1927; Rehd., Man. Cult. Trees, ed. 2, 305. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 67 & 103 (1942) and [ed. 2], 149 & 201. 1949.

Small tree, 6--3 m. tall; bark gray; branchlets obtusely tetragonal, ferruginous-pubescent; internodes subclavate; leaves 3-foliolate; petioles ferruginous-pubescent; leaflets sessile or subsessile, the petiolules absent or to 5 mm. long on the lateral and to 8 mm. long on the central leaflets; leaflet-blades chartaceous, grayish-green, oblong-lanceolate, acute at the apex and base, entire, densely pubescent above (more densely on the veins) with simple or sometimes stellate hairs intermixed, tomentellous beneath and subglandulose, the young ones ferruginous-puberulent, the central ones 16--23 cm. long and 11--12 cm. wide, the lateral ones 14--21 cm. long and 8--9 cm. wide; midrib white; secondaries 15--18 on the central and 11--15 on the lateral leaflets; inflorescence paniculate, axillary, very narrow, subspicate, solitary in the leaf-axils, ferruginous-pubescent; flowers greenish, only very immature ones seen.

The type of this species was collected by Carl Ludwig Ledermann (no. 7972) at Camp Malu, at 50 to 100 meters altitude, in Northeastern New Guinea, on July 18, 1912. The type specimen has only very young buds, so the flower structure could not be determined with accuracy. It is very possible that it represents something non-verbenaceous. It is known thus far only from the single collection. The *Vitex macrophylla* of Robert Brown is a synonym of *Gmelina dalrympleana* (F. Muell.) H. J. Lam, while the *V. macrophylla* "Anon." and "Hort." are *V. agnus-castus* f. *latifolia* (Mill.) Rehd.

VITEX MADAGASCARIENSIS Moldenke, Phytologia 3: 441--442. 1951.

Shrub, 3--4 m. tall; branches few, with the leaves clustered at their summit, stout, obtusely tetragonal, deeply canaliculate, densely glandular-pubescent on the younger parts with short ful-

vous-brown (or orange-red when fresh) hairs interspersed with much longer non-glandular hairs which rub off in age; leaves decussate-opposite, 9-foliolate; petioles stout and stiff, conspicuously angular, 24--25 cm. long, very densely glandular-pubescent with spreading fulvous-brown short hair interspersed with much longer non-glandular hairs; leaflets sessile, chartaceous or submembranous, rather dark-green on both surfaces or somewhat lighter above in drying, very long and narrow, mostly 6 times as long as wide, oblanceolate, more or less lightly pilose above, much more densely so on the larger venation, very densely impressed-punctate and pilosulous-puberulent or short-pubescent beneath, with scattered much longer hairs interspersed, more densely pubescent on the venation, the central ones 27--30 cm. long and 3.6--5.1 cm. wide, long-acuminate at the apex, entire, long-attenuate to the base, the lower ones 8--11 cm. long and 1.5--2.8 cm. wide, symmetrical; inflorescence apparently axillary, spherical, sessile, densely congested, many-flowered, to 6 cm. in diameter, very densely fulvous-villous or -hirsute throughout; peduncles obsolete; cyme-branches and pedicels much abbreviated, mostly completely hidden by the flowers; bractlets linear, about 5 mm. long, densely fulvous-hirsute; calyx yellow when fresh, campanulate, about 6 mm. long and wide, densely fulvous-villous or -hirsute, its rim truncate and subentire; corolla infundibular-tubular, 2--2.5 cm. long, somewhat incurved, very densely fulvous-villous or -hirsute outside, yellow when fresh, its tube about 8 mm. wide at the apex, gradually narrowed to the base, the lobes 5, unequal, 4--5 mm. long, acute or subacute at the apex, densely fulvous-villous outside, with only a few scattered hairs on the inner surface, reflexed at anthesis; stamens exerted about 1 cm. from the corolla-tube, the exerted portion very sparsely scattered-pilosulous; anthers deeply bilobed, slightly over 1 mm. long, the thecae often somewhat twisted at the base; pistil slightly shorter than the stamens, glabrous; stigma bifid.

The type of this species was collected by Joseph Marie Henri Alfred Perrier de la Bâthie (no. 10269) in the eastern forest at Vatovavy, in the basin of the Manonjary river, Madagascar, in October of 1911, and is deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris. The collector makes the curious statement that "infl. en grosse sphère de 0,20 a 0,40 cm. de diam.", but the inflorescence on the type is 6 cm. in diameter. He is also responsible for the statements "poils d'un rouge orange" and "calice et corolle jaunes". The species is known thus far only from the type collection.

Citations: MADAGASCAR: Perrier de la Bâthie 10269 (N--isotype, N--photo of type, P--type, Z--photo of type).

VITEX MADIENSIS Oliv., Trans. Linn. Soc. Lond. Bot. 29: 134, pl. 131. 1875.

Synonymy: Vitex camporum Bütt., Verhand. Bot. Ver. Brand. 32: 35. 1390 [not V. camporum Gürke, 1903]. Vitex camporum var. longepedicellata DeWild., Ann. Mus. Congo, bot. ser. 5, 3: 127. 1909. Vitex camporum var. longepedicellatum DeWild., Mission Ka-

sai 400. 1910. *Vitex madiensis* var. *typica* Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62 & 63. 1928. *Vitex camporum* var. *longepedicellat.* DeWild. apud Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 63, in syn. 1928.

Literature: Oliv., Trans. Linn. Soc. Lond. Bot. 29: 134, pl. 131. 1875; Büttl., Verhandl. Bot. Ver. Brand. 32: 35. 1890; Durand & Schinz, Etud. Fl. Congo 222. 1896; Henriques, Bol. Soc. Brot. 16: 69. 1899; Hiern, Cat. Afr. Pl. Welw. 4: 834. 1900; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 315 & 322--324. 1900; DeWild. & Durand, Contr. Fl. Congo 2: 39. 1900; DeWild. & Durand, Reliq. Dewevr. 184. 1901; DeWild., Etud. Fl. Katanga 121. 1903; Gürke in Baum, Kunene-Sambesi Exped. 350. 1903; DeWild., Etud. Fl. Bas- & Moyen-Congo 1: 309. 1906; Durand, Syllog. Fl. Congol. 436. 1909; DeWild., Ann. Mus. Congo, bot. ser. 5, 3: 127. 1909; DeWild., Fl. Bas- & Moyen-Congo 127, 255, & 467. 1910; De Wild., Missiun Compag. Kasai 400. 1910; Mildbr. in Von Mecklenb., Ergebn. Deutsch. Zentral-Afrik. Exped. 2: 11 & 68. 1910--1911; A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 243. 1913; A. Chev., Explor. Bot. Afr. Occ. Franç. 1: 505. 1920; DeWild., Contrib. Fl. Katanga 164. 1921; DeWild., Pl. Bequaert. 2: 255. 1922; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 48, 61--64, 81, & 83, pl. 10. 1928; Pellegrin, Mém. Soc. Linn. Normandie, new ser., sect. bot., 1 (3): 50. 1928; DeWild., Contrib. Etud. Fl. Katanga Suppl. 2: 105. 1929; DeWild., Pl. Bequaert. 5: 11--12. 1929; Worsdell, Ind. Lond. Suppl. 2: 500. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 45, 46, 48, 49, 51, & 103. 1942; Moldenke, Alph. List Invalid Names 52 & 54. 1942; Moldenke, Phytologia 2: 120. 1944; Moldenke, Alph. List Invalid Names Suppl. 1: 28. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 109--111, 114--116, 119, & 201. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 15. 1949.

Illustrations: Oliv., Trans. Linn. Soc. Lond. Bot. 29: pl. 131. 1875; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: pl. 10. 1928.

Shrub or tree, 3--5 m. tall; trunk to 10 cm. in diameter; branchlets more or less densely pubescent, often villous when young; leaves usually 3-foliolate, sometimes 1-foliolate; petioles 7.5--10 cm. long; leaflet-blades subcoriaceous, obovate-cuneate, 6--15 cm. long, 3--7.5 cm. wide, obtuse to more or less cuspidate at the apex, deeply crenate above the middle, green and glabrous or subglabrous above when mature, densely pubescent beneath, especially on the larger veins, the central leaflet distinctly short-petiolate; inflorescence cymose, axillary, long-pedunculate, dense, its branches densely hairy; pedicels very short, densely hairy; bractlets linear-subulate; calyx campanulate, about 3 mm. long and wide, densely hairy, its rim toothed, the teeth ovate, distinct or obscure; corolla blue, white-violet, or whitish, about 6 mm. long, its tube as long as or longer than the calyx, hairy on the outside, the lobes often small, very hairy outside; fruit about 2.5 cm. long or about the size of a small plum, edible, red or yellow, neither black nor sweet, but sharp-tasting like tamarind, 1-stoned.

The species is based on Grant 2, collected at Madi in December of 1862 (App. Speke's Journ. 644). As Pieper has pointed out, this species in the broad sense shows tremendous variability in its floral characters, number, form, and pubescence of the leaflets, and the type of leaflet-margin and calyx-rim. The leaves appear to be 1--5-foliolate, the leaflets narrow or broad, entire or toothed, and the calyx-rim with distinct or obscure teeth. This necessitates the sinking into its synonymy of several taxa formerly regarded as distinct species. V. camporum Butt. was already reduced to V. madiensis by Hiern in 1900, although Baker in the same year still attempted to distinguish the two, citing for V. madiensis (calyx-teeth distinct, 1 mm. long at time of anthesis; leaflets glabrous beneath) Schweinfurth III.48, 1313, 1365, 1506, 2030, and 2343 and Speke & Grant 649 from Anglo-Egyptian Sudan. For V. camporum (calyx-teeth minute; leaflets densely pubescent beneath) he cited Scott-Elliot 5139 from Sierra Leone, Laurent s.n. and Buttner 428 from Belgian Congo, and Buttner 427 and Marques 10 from Angola.

Hiern also reduced V. holocalyx J. G. Baker, based on Welwitsch 5636, to a variety (var. parvifolia Hiern) of V. madiensis. He also claimed that V. simplicifolia Oliv. "is probably the same species". However, I follow Pieper in maintaining V. holocalyx and V. simplicifolia as distinct species. Baker united V. schweinfurthii Gürke with V. madiensis and it is best regarded as a variety of it [var. schweinfurthii (Gürke) Pieper]. The homonym, V. schweinfurthii Baker, is also united with V. madiensis by Chevalier (1913), but Pieper maintains that it belongs in the synonymy of V. simplicifolia. V. milanjiensis Britten and V. ringoeti DeWild. are both best regarded as another variety [var. milanjiensis (Britten) Pieper].

The presently accepted varieties (which the exception of Chevalier's two varieties, of which no description has been published) may be distinguished from the typical form of the species and from each other as follows:

1. Branchlets, leaves, and inflorescences more or less pubescent.
2. Leaves all 5- or else 3- and 5-foliolate; leaflets sometimes narrow and more than twice as long as wide, the venation sometimes impressed; ovary sometimes densely hairy.
3. Leaflets narrow, about 2 or 3 times as long as wide, toothed.....var. angustifolia.
- 3a. Leaflets broad, up to 2 times as long as wide.
4. Venation not impressed.
5. Leaflets entire; ovary only scattered-pilose.....
var. milanjiensis.
- 5a. Leaflets toothed; ovary densely pilose.....
var. schweinfurthii.
- 4a. Venation impressed; leaflets mostly entire, rarely toothed.....var. gossweileri.

2a. Leaves all 3- or else 1- and 3-foliolate; leaflets always broad, not more than twice as long as wide, the venation never impressed; ovary always only scattered-pilose.

6. Leaflets small, to 5 cm. long; leaves 3-foliolate.....
var. *aromatica*.

6a. Leaflets large, over 5 cm. long; leaves 1- or 3-foliolate.

7. Leaflets toothed.....*V. madiensis*.

7a. Leaflets entire.....var. *baumii*.

1a. Branchlets, leaves, and inflorescences completely glabrous..
var. *glaberrima*.

DeWildeman in his 1932 publication cites Pieper's monograph as "Bot. Jahrb. 72: Beiblatt 61. 1928" and dates the original publication of *V. camporum* as "1690", instead of 1390, and his own *Plantae Bequaertianae* 2: 255 as "1910", instead of 1922. In his 1929 works he cites Allard 95, Bequaert 810, Cabra 54, Claesens 928 and s.n., DeGiorgi 233, DeLevoy 619, Goossens 1242, Panda Farnana A, Saemaes s.n., Sparano 6, Vanderyst 1676, 1921, 2424, 3500, 3683, 5833, 5860, 7816, 9744, 9928, and s.n., Vanderyst & Lambrette 5725, Vermoesen 1101, 1126, and 2020, Verschueren 60, 132, and 643, and Wellens 228 from Belgian Congo. Panda Farnana reports that a decoction of the leaves is used by the natives to stimulate perspiration, the fruit is edible, and an infusion of the bark is used in the treatment of diarrhea. Claesens and Sparano also report that the fruit is edible.

Chevalier (1913) cites his nos. 6579, 7176, 7177, 7225 bis, 7233, 7312, 7440, 7472 bis, 7535, 8085, 8907, and 9046 from Ubangi-chari, French Equatorial Africa, and says the species is a shrub, 3--5 meters tall, with white-violet flowers, blooming from December to January, April, June, and July, inhabiting thickets on plains. In his 1920 work he cites his nos. 496, 12460, 12467, and 12990 from French Guinea and nos. 510 bis and 511 from French Soudan. Pieper cites as having been examined and verified by himself Buttner 427, Buchner 575, Gossweiler 1051, Marques 3, and Welwitsch 5713 and 5728 from Angola, Ledermann 2210, 2225, and 3348, Mildbraed 4824, and Tessmann 2474 from the Cameroons, Chevalier 5065 and 6579 from Ubangi-chari, Chevalier 496 from "Sudan", Schweinfurth 1313 and 1506 and Speke & Grant 649 from Anglo-Egyptian Sudan, and Buttner 428, Dupuis s.n., Laurent s.n., Mildbraed 3513, and Pogge 1053 and 1099 from the Belgian Congo.

DeGiorgi and other collectors have found the species on the shores of rivers, in grasslands, and on wooded savannas. Common names recorded for the typical form of the species are "bilikito", "councou coudoule", "filia", "filu", "filungu", "filu tando", "kafutufutu", "kuru kudulé", "m'filu", "m'keendeembe", "m'thalassee", "mufutu", "n'filu", "nimbuli", "pala banda", "philo", and "tshikurimata".

Citations: ANGLO-EGYPTIAN SUDAN: Denka: Schweinfurth 1506 (N, N--photo, S, Z--photo). BELGIAN CONGO: Couteaux 1069 (Br, Br,

Br); Dacremont 93 (Br, Br, Br); De Graer 270 (Br, N); De Wulf 196 (Br, Br); Germain 772 (Br, Br), 2798 (Br, Br, Br); Gilbert 325 (Br, Br, Br, N); J. Hammar s.n. (S, S); Lebrun 2192 (Br, Br); Matagne 274 (Br, N); Overlaet 981 (Br, Br); Quarré 2006 (Br), 2033 (Br); Vanderyst 21270 (Br), 21271 (Br), 21354 (Br), 22486 (Br, N), 23266 (Br), 23751 (Br), 23996 (Br), 25969 (Br, S), 26570 (Br, Br), 27534 (Br), 28036 (Br), 28094 (Br), 29574 (Br, N), 35105 (Br), 35848 (Br); Vrydagh 34 (Br). ANGOLA: Loanda: Marques 3 [Herb. Hort. Then. III.256] (Br, N); R. G. N. Young 536 (N, N).

VITEX MADIENSIS var. ANGUSTIFOLIA Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62--63. 1928.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]L 62--63 & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 45 & 103 (1942) and [ed. 2], 110 & 201. 1949.

This variety differs from the typical form of the species in having its leaves 3--5-foliolate and the leaflets narrow, 2--3 times as long as wide.

The type of the variety was collected by Georg August Schweinfurth (no. 1320) in the Denka Territory of Anglo-Egyptian Sudan and is deposited in the herbarium of the Botanisches Museum in Berlin. Pieper states that the labels of Schweinfurth's 1313 and 1320 have been mixed in the Berlin herbarium -- 1313 is typical V. madiensis, with the broad leaves, and 1320 is the collection with the narrow leaves, as may be determined by consultation of the original labels.

VITEX MADIENSIS var. AROMATICA Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62 & 63. 1928.

Synonymy: Vitex sp. aromatica Schweinfurth ex Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 63, in syn. 1928.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62, 63, & 83. 1928; Moldenke, Alph. List Invalid Names 55. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 46, 49, & 103 (1942) and [ed. 2], 112, 116, & 201. 1949.

This variety differs from the typical form of the species in having all its leaves 3-foliolate and the leaflets small, not more than 5 cm. in length.

It is based on Schweinfurth 48 [cited as "III.48" by Baker and called typical V. madiensis] and Scott-Elliott 5189 [cited by Baker as V. camporum], the former collected in the Djur [Jur] territory at Kurghook Ali's Seriba in Anglo-Egyptian Sudan, and the latter collected near Falaba in Sierra Leone, both deposited in the herbarium of the Botanisches Museum at Berlin. Schweinfurth originally labeled his collection no. 48 as "Vitex sp. aromatica".

VITEX MADIENSIS var. BAUMII Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62 & 64. 1928.

Synonymy: Vitex camporum Gürke apud Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 64, in syn. 1928 [not V. camporum Butt., 1890].

Literature: Gürke in Baum, Kunene-Sambesi Exped. 350. 1903; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62, 64, & 83. 1928; Moldenke, Alph. List Invalid Names 52. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 51 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 50. 1943; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 119 & 201. 1949.

This variety differs from the typical form of the species in having its leaflets entire instead of toothed on the margins.

The type of the variety was collected by H. Baum (no. 821) at the Quiriri in Angola and is deposited in the herbarium of the Botanisches Museum in Berlin.

Citations: BELGIAN CONGO: Callens 4480 (Z); Lebrun 6748 (Br, Br, N, N--photo, Z--photo); Matagne 318 (Br, Br); Quarré 7081 (Br).

VITEX MADIENSIS var. DARBANDENSIS A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 244, hyponym. 1913.

Literature: A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 244. 1913; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 64 & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48 & 103 (1942) and [ed. 2], 114 & 201. 1949.

It is not known how this variety differs from the typical form of the species, since Chevalier published no description of it and the collections he cites have not yet been seen by me. It is based on Chevalier 8753 bis, 8920, and 10499, collected at Kaba-mara, in the land of the Koulfes, region of Lake Iro, and between Bousso and Fort Archambault, in Ubangi-chari, French Equatorial Africa, on July 7 and between November 5 and 15, 1903.

VITEX MADIENSIS var. GLABERRIMA Moldenke, Phytologia 4: 63. 1952.

This variety differs from the typical form of the species in having its leaves, as well as all other parts, completely glabrous.

The type of the variety was collected by Pittery (no. 819) in the neighborhood of Bambesa, Belgian Congo, in 1936, and is deposited in the herbarium of the Jardin Botanique de l'Etat at Brussels. It is known thus far only from the original collection.

Citations: BELGIAN CONGO: Pittery 819 (Br--type, N--photo of type, Z--photo of type).

VITEX MADIENSIS var. GOSSWEILERI Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62 & 63. 1928.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62, 63, & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 50, 51, & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 62. 1943; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 118, 119, & 201. 1949.

This variety differs from the typical form of the species in

having the leaves all 5-foliolate or else 3- and 5-foliolate, mostly entire (rarely toothed), and the major venation impressed above.

It is based on Buchner 576 from somewhere in Angola, Gossweiler 1062 and 1065 from Malange in Loanda, Angola, Nägele 247 from Uganda, and Fries 447 from Bwana Mkubwe, Northern Rhodesia, all deposited in the herbarium of the Botanisches Museum in Berlin. Flowers are not present on any of these cotypes, so the position of the taxon is not absolutely certain.

Citations: BRITISH NYASALAND PROTECTORATE: N. C. Chase 3848 [Govt. Herb. Salisbury 34283] (Bm, N).

VITEX MADIENSIS var. MILANJIENSIS (Britten) Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 63. 1928.

Synonymy: Vitex milanjiensis Britten, Trans. Linn. Soc. Lond. Bot., ser. 2, 4: 36. 1894. Vitex ringoeti DeWild. in Fedde, Repert. Spec. Nov. 13: 143. 1914. Vitex madiensis var. milanjiensis (Britten) Pieper apud DeWild., Pl. Bequaert. 5: 12. 1929.

Literature: Britten, Trans. Linn. Soc. Lond. Bot., ser. 2, 4: 36. 1894; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 330. 1900; DeWild. in Fedde, Repert. Spec. Nov. 13: 143. 1914; DeWild., Contrib. Etud. Fl. Katanga 165. 1921; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62, 63, 83, & 84. 1928; DeWild., Contrib. Etud. Fl. Katanga Suppl. 2: 105. 1929; DeWild., Pl. Bequaert. 5: 12-13. 1929; Moldenke, Alph. List Invalid Names 54 & 55. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49, 51, & 103. 1942; Moldenke, Alph. List Invalid Names Suppl. 1: 29. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 79. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 115, 119, 120, & 201. 1949.

This variety differs from the typical form of the species in having its leaves either all 5-foliolate or else 3- and 5-foliolate and the leaflets entire-margined.

The variety is based on Alexander Whyte 138 from an altitude of 6000 feet at Milanji, Nyasaland. The word "Zomba" is also given after the citation of the type specimen and may well refer to the unnumbered Mount Zomba collection cited by Baker

Collectors describe the plant as a tall tree, shrub, procumbent shrub, or liana, "with characteristic flowers", inhabiting open forests in mountainous areas. It ascends to 4000 feet in Northern Rhodesia and to 6000 feet in Nyasaland, flowering in November. It has been misidentified as V. camporum Bttt. De Wildeman (1929) gives "1694" as the date of publication for V. milanjiensis and "1919" as the date of publication of V. ringoeti, both apparently in error. Baker cites Scott-Elliot 8282 and 8622 and Buchanan 79 and 194 from British Nyasaland Protectorate, and Whyte s.n. [Mount Zomba] and s.n. [Mount Milanji] from Portuguese East Africa. Pieper adds Ringoet 1 from Belgian Congo and Buchner 26 and Gossweiler 1066 from Angola.

DeWildeman quotes various collectors as describing the plant

as 1--7 m. tall, with the wood brownish-black; branches yellowish-pubescent when young; buds ovoid and pubescent, about 2 mm. in diameter, the terminal one much larger; petiole rounded and about 10--12 cm. long; petiolules rounded, green, 1.5--3 cm. long, pubescent; leaflet-blades oval or oboval, entire or simulate-margined, varying from rounded or emarginate to short-acuminate at the apex, cuneiform at the base, glabrous or pubescent on both surfaces, the central one 4--12 cm. long and 3--9 cm. wide, the two lower ones about 3.5 cm. long and 2--2.5 cm. wide, the venation prominent beneath, the secondaries arising at angles of 45°--70° with the midrib; inflorescence axillary; calyx green, gray-pubescent; corolla blue, violet, whitish-mauve, or whitish-violet; fruit edible, spherical, "se desséchant en constituant une noix noire dans une membrane noire". He cites DeGiorgi 316, Delevoey 285 and 460, Elskens 2231, Lode Achten 227, Quarré 44 and 717, Sapin s.n., and Verdick 234, 317, and 563 from Belgian Congo.

The wood is said to be used for making mortars for the pounding of manioc. Common names recorded for the variety are "kafidufutu", "kafutufute", "kikalakamba", "moviro", and "mufutu". The last of these names is applied also to various other species of the genus.

Citations: NORTHERN RHODESIA: Pole-Evans 3043 [50] (Af); F. A. Rogers 8638 (N--photo, S, Z--photo). BELGIAN CONGO: Callens 3072 (N), 3300 (N), 4196 (Z); Lebrun 6688 (Br, Br); Overlaet 381, in part (Br, N); Quarré 717 (S), 3705 (Br, Br, Br, N). ANGOLA: Londa: Fritsch 284 (N, S).

VITEX MADIENSIS var. NIVEA A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 244, hyponym. 1913.

Literature: A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 244. 1913; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 64 & 83. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48 & 103 (1942) and [ed. 2], 114 & 201. 1949.

I do not know how this variety differs from the typical form of the species or its other varieties, since it has never been described and the cotype collections have not yet been seen by me. It is based on Chevalier 6943 bis and 6951 from Dar-Banda, Ndelle, Ubangi-chari, in French Equatorial Africa, collected between December 20 and 25, 1902.

VITEX MADIENSIS var. SCHWEINFURTHII (Gürke) Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 63. 1928.

Synonymy: *Vitex schweinfurthii* Gürke in Engl., Bot. Jahrb. 18: 170. 1894 [not *V. schweinfurthii* J. G. Baker, 1900].

Literature: Gürke in Engl., Bot. Jahrb. 18: 170. 1894; J. G. Baker in Thiseit-Dyer, Fl. Trop. Afr. 5: 322. 1900; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 62, 63, 83, & 84. 1928; Moldenke, Alph. List Invalid Names 55. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 45, 48, 49, & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 82. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 110, 114, 115, & 201.

1949.

This variety differs from the typical form of the species in having its leaves either all 5-foliolate or else both 3- and 5-foliolate and the ovary densely pilose.

It is said to ascend to 680 meters altitude in Belgian Congo. Vernacular names are "biligita" and "mbilikita". The variety is based on Schweinfurth 1365 and 2030 from Bahr-el-Ghasal, Seriba Ghattas, and Schweinfurth 2848 from Kvolo, Anglo-Egyptian Sudan, Mildbraed 3683 from Kimuenza, Belgian Congo, and Mildbraed 8914 from north of Lom, Cameroons, all deposited in the herbarium of the Botanisches Museum in Berlin.

Citations: ANGLO-EGYPTIAN SUDAN: Denka: Schweinfurth 1365 (S-cotype). BELGIAN CONGO: Bergeyck 34 (Br); Germain 572 (Br, Br, N), 4417 (Br, Br, Br, N); Leontovitch 173 (Br, Br, Br, N).

VITEX MARANHANA Moldenke, Alph. List Common Names 29, hyponym. 1939; Trop. Woods 64: 35--36. 1940.

Literature: Moldenke, Alph. List Common Names 29. 1939; Moldenke, Geogr. Distrib. Avicenn. 27. 1939; Moldenke, Trop. Woods 64: 35--36. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39 & 103. 1942; Moldenke, Phytologia 2: 120. 1944; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 95 & 201. 1949.

Tree, to 10 m. tall; trunk to 15 cm. in diameter at breast height; branchlets stout, obtusely tetragonal, at first densely fulvous-villous with long appressed hairs, later merely very densely brown-puberulent or short-pubescent, eventually glabrous and light-gray in color; pith tetragonal; nodes not annulate; principal internodes greatly abbreviated, 5--10 mm. long; leaves decussate-opposite, 3-foliolate, clustered at the ends of the youngest twigs; petioles rather stoutish, 3--6 cm. long, densely fulvous- or brownish-pubescent, often long-villous with fulvous silky hairs like on the young twigs at the base, plainly flattened above; leaflets sessile or subsessile, chartaceous, elliptic, subequal in size or the 2 lateral ones slightly smaller, 3.5--10.5 cm. long, 2--5 cm. wide, abruptly acute or short-acuminate at the apex, the very tip often blunt, emarginate, or minutely apiculate, entire, subcuneate or acute at the base, densely short-pubescent with brownish velutinous hairs on both surfaces; midrib slender, impressed to the apex above, very prominent beneath; secondaries slender, ascending, rather straight and parallel, close together, 17--20 per side, impressed above, prominent beneath, anastomosing close to the margins; veinlet reticulation abundant, fine, prominulous beneath, the tertiaries subimpressed above; inflorescence cymose, axillary, equaling or slightly surpassing the petioles, few-flowered; peduncles rather stout, about 4 cm. long, densely fulvous- or brownish-pubescent; fruiting-pedicels incrassate, about 3 mm. long; fruiting-calyx patelliform, about 7 mm. wide, puberulent; fruit drupaceous, fleshy, elliptic, about 1.3 cm. long and 1 cm. wide, densely whitish-puberulent.

The type of this species was collected by Ricardo de Lemos Fróes (no. 4) in a highland forest on terra firma at Pirucana,

Maranhão, Brazil, on February 12, 1933, and is deposited in the Britton Herbarium at the New York Botanical Garden. The collector records the common name "tarumã assú". The species is known thus far only from the original collection.

Citations: BRAZIL: Maranhão: Fróes 4 (N--type, W--1618740--isotype).

VITEX MARQUESII Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 52, 73, & 83, pl. 9. 1928; Fedde, Repert. Spec. Nov. 26: 165. 1929.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 52, 73, & 83, pl. 9. 1928; Pieper in Fedde, Repert. Spec. Nov. 26: 165. 1929; Hill, Ind. Kew. Suppl. 8: 249. 1933; Worsdell, Ind. Lond. Suppl. 2: 500. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 51 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 71. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 119 & 201. 1949.

Illustrations: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: pl. 9. 1928.

Leaves 5-foliolate; petioles about 10 cm. long, short-pilose with fuscous hairs; leaflet-blades subcoriaceous, elliptic or obovate, to 12 cm. long and 5 cm. wide, short-acuminate at the apex, shiny and scabrous above, softly fuscous-pilose beneath; secondaries about 12, straight, parallel; petiolules very short, to 4 mm. long, fuscous-pilose; inflorescence dichasial, short-puberulent with fuscous hairs; bracts and bractlets subulate, caducous; pedicels rather thick, very short; flowers large; calyx oblong-campanulate, subbilabiate, fuscous-puberulent, conspicuously dentate, the teeth 1.5--2 mm. long; corolla geniculate, about 18 mm. long, densely appressed-pilose on the outside, the upper lip shortly bilobed, erect; style villous at the base, oblique, curvate, short-pilose toward the apex; ovary obpyriform, pilose at the apex, articulate with the style.

The species is based on Marques 271 from Malandsche, Angola, but Pieper also cites Marques 217. The latter is not a cotype, since Pieper definitely refers to no. 271 as the type collection.

VITEX MARTII Moldenke, Geogr. Distrib. Avicenn. 27, nom. nud. 1939; Phytologia 1: 488--489. 1941.

Literature: Moldenke, Geogr. Distrib. Avicenn. 27. 1939; Moldenke, Phytologia 1: 488--489. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39 & 103. 1942; H. N. & A. L. Moldenke, Pl. Life 2: 71. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 95 & 201. 1949.

Tree; branches and branchlets slender, grayish, obtusely tetragonal, somewhat swollen at the nodes, densely puberulent with extremely fine matted grayish puberulence, becoming subglabrate in age, not noticeably lenticellate; twigs very slender, mostly abbreviated, very densely puberulent with fulvous or ferruginous hairs; nodes not annulate; principal internodes 1--2.8 cm. long or (on young twigs) extremely abbreviated (to 1 mm. long); leaf-scars large, corky, prominent; leaves decussate-opposite, 3--5-

foliolate; petioles very slender, 0.6--2.8 cm. long at time of anthesis, densely short-pubescent with flavescent or fulvous hairs, flattened above, not noticeably ampliate at the base; leaflets sessile or subsessile at time of anthesis, the blades membranous, rather uniformly bright-green on both surfaces or somewhat lighter beneath, the central ones elliptic, 1.5--3.5 cm. long, 6--11.5 mm. wide, sharply acute at the apex, entire, acute at the base, finely puberulent above, somewhat more densely so beneath, mostly conduplicate and reflexed; midrib very slender, plane above, slightly prominulent beneath; secondaries very slender, about 10 per side, ascending, short, not much arcuate; vein and veinlet reticulation very fine, indiscernible above, plane beneath; inflorescence axillary, capitate, 2--5 mm. long, 6--15 mm. wide, densely many-flowered, not brachiate, appearing before or with the leaves; peduncles very slender, 1.6--4 cm. long, densely short-pubescent or puberulent with flavescent or fulvous hairs; calyx campanulate, about 2.6 mm. long and wide, densely appressed-pubescent with yellowish antrorse hairs, its rim distinctly 5-toothed, the teeth broadly ovate, acutely triangular; corolla hypocrateriform, its tube infundibular, about 6 mm. long, gradually ampliate from base to apex, densely short-pubescent on the outside with yellowish hairs, its limb bilabiate, pubescent on both surfaces, the 4 smaller lobes oblong-elliptic, about 3 mm. long, rounded, the central lower lobe much enlarged; stamens and style somewhat exserted; fruiting-calyx and fruit not known.

The type of this little-known species was collected by Carl Friedrich Philipp von Martius in the woods of the Catingas along the Rio São Francisco Salgado, in Minas Gerais, Brazil, and is deposited in the herbarium at Munich. Unfortunately, both the known collections were made while the plants were in the beginning of anthesis (September), and so the leaves are obviously very immature. It is hoped that specimens in a later stage of development may soon be forthcoming. The plant was identified as V. sellowiana Cham. by Martius and as V. montevidensis Cham. by Schauer.

Citations: BRAZIL: Bahia: Martius s.n. [Malhada near Caitchi] (Mu--667). Minas Gerais: Martius s.n. [along the Rio São Francisco Salgado] (Mu--666--type, N--isotype, N--photo of type, Z--photo of type).

VITEX MASONIANA Pittier, Contrib. U. S. Nat. Herb. 18: 170. 1916.

Synonymy: Vitex masoni Pittier ex Moldenke, Prelim. Alph. List Invalid Names 51, in syn. 1940.

Literature: Pittier, Contrib. U. S. Nat. Herb. 18: 170. 1916; Moldenke, Alph. List Common Names 26. 1939; Moldenke, Geogr. Distrib. Avicenn. 18. 1939; Moldenke, Prelim. Alph. List Invalid Names 51. 1940; Moldenke, Alph. List Invalid Names 54. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 24 & 103. 1942; Moldenke, Phytologia 2: 120. 1944; H. N. & A. L. Moldenke, Pl. Life 2: 71. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 41 & 201. 1949.

Illustrations: Pittier, Contrib. U. S. Nat. Herb. 18: 170.1916.

Tree, to 25 m. tall; trunk to 12 m. tall and 60 cm. in diameter; branchlets rather stout, rather acutely tetragonal, mostly sulcate between the angles, densely furfuraceous-puberulent or short-pubescent with brownish hairs, medullose, somewhat lenticellate, becoming very sparsely and minutely puberulent in age; twigs slender or stoutish, short, rather acutely tetragonal, densely furfuraceous with brown hairs, often compressed; nodes conspicuously annulate; principal internodes 1.5--7 cm. long; leaf-scars rather large and corky, not very prominent; leaves decussate-opposite, 3--5-foliolate, fully matured at time of anthesis; petioles rather stoutish, 2--8.5 cm. long, convex beneath, conspicuously flattened above, densely furfuraceous with brown hairs throughout, somewhat ampliate at the base and club-shaped at the apex; leaflets subequal or the lowermost somewhat smaller, all subsessile or petiolulate on rather stout, furfuraceous, margined petiolules 1--9 mm. long; leaflet-blades light-green on both surfaces, subcoriaceous, the central ones elliptic, 4.3--24.5 cm. long, 1.8--10.3 cm. wide, acute or obtuse at the apex, entire, often slightly subrevolute along the margins, acute at the base, glabrous above, rather densely short-pubescent beneath, the lateral ones similar in all respects but usually smaller; midrib slender, deeply impressed above, very prominent beneath; secondaries slender, 9--20 per side, irregular, arcuate-ascending, deeply impressed above, sharply prominent beneath, arcuately joined near the margins; vein and veinlet reticulation coarse, impressed above, sharply prominent beneath; inflorescence axillary, paniculate, 6.5--18.5 cm. long, 3.5--6.5 cm. wide, composed of 2--5 pairs of opposite, rather long-stipitate, many-flowered cymes and a terminal one, furfuraceous-puberulent with brownish hairs throughout; peduncles 3.5--5.5 cm. long, rather slender, flattened, densely brownish-furfuraceous; rachis rather slender, flattened, densely brownish-furfuraceous; pedicels slender and about 1 mm. long or obsolete; bracts often present, foliaceous, 3-foliolate, stipitate, to 3.5 cm. long and 3 cm. wide, the segments resembling ordinary leaflets in all respects but size; bractlets linear or oblong, 2--6 mm. long; prophylla linear, 1--2 mm. long, furfuraceous; corolla blue.

The type of this species was collected by that amazingly indefatigable botanist, easily the most outstanding personality I have ever had the honor to meet, Dr. Henri François Pittier de Fábrega (no. 4489) in forests along the upper Mamoni River, at an altitude of 150--400 meters, Panama, in October of 1911, and is deposited in the United States National Herbarium at Washington. Kluge states that the species is "widely distributed, but not numerous"; others call it "infrequent". It ascends from 33 to 400 meters altitude, and has been collected in anthesis in June and October. It appears to be related to V. orinocensis var. multiflora (Miq.) Huber, but differs notably in its 5-foliolate leaves, distinctly 5-toothed calyx, etc. It has been confused in herbaria with V. floridula Duchass. & Walp. The Pittier 6720, distributed as this species, is actually Godmania aesculifolia

(H.B.K.) Standl. of the Bignoniaceae. Common names are "quajado" and "pu-pu-chiru".

Citations: PANAMA: Darien: P. H. Allen 265 (N), 4588 (N, S). Panamá: Kluge 44 [Mus. Yale School Forest. 7243] (F--551733, F--573821, K, N, N--photo, W--1206443, Y, Y, Z--photo); H. Pittier 4489 (Bm--isotype, G--isotype, N--isotype, N--photo of type, W--679649--type, W--679650--isotype, Z--photo of type).

VITEX MEDUSAECALYX H. J. Lam, Bull. Jard. Bot. Buitenz., sér. 3, 3: 59. 1921.

Literature: H. J. Lam, Bull. Jard. Bot. Buitenz., sér. 3, 3: 59. 1921; Hill, Ind. Kew. Suppl. 7: 252. 1929; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 63 & 103 (1942) and [ed. 2], 143 & 201. 1949.

Arborescent shrub, 3--5 m. tall, erect, branched; branchlets chocolate-colored, brown-farinose; leaves 3-foliolate; petioles 5--9 cm. long, puberulent; leaflet-blades membranous-chartaceous, ovate, acuminate at the apex, entire, cuneate at the base, sometimes gradually decurrent, sparsely puberulent above, more densely so on the veins, yellow-glandulose when young, softly pubescent and sparsely glandulose beneath, the lateral ones 6.5--8.5 cm. long, 2.1--4.1 cm. wide, on petiolules that are 4--7 mm. long, and with 6 or 7 pairs of secondaries, the central one 8--12.5 cm. long, 3.9--5.8 cm. wide, on a petiolule 1.8--3 cm. long, and with 7 or 8 pairs of secondaries; cymes axillary, mostly solitary, sometimes binary, 2.5--3.5 cm. long, twice dichotomous; peduncles 1.2--2 cm. long; bracts (in bud) linear, 3--5 mm. long, later caducous; pedicels 2--6 mm. long, slender, subtended by 2 opposite linear bractlets; calyx at time of anthesis about 4 mm. long, the tube cupuliform, the lobes ribbon-like or broadly linear, about 1.5 mm. long and 0.5 mm. wide, very abrupt at the apex, pubescent on the outside, the basal sinus-margins straight; corolla yellow (in bud), its tube 3.5--4 mm. long, cylindric, the 4 smaller lobes rounded, about 0.5 mm. long, the one larger lobe about 1 mm. long, puberulent except for the lower part; stamens inserted near the base of the corolla-tube among a ring of rigid hairs, some hairs pointing up and some pointing down; style slender; stigma very shortly bifid; ovary glabrous on the lower part, glandulose on the upper part; fruit subglobose, black, about 6 mm. long, 5--6 mm. wide.

The species is based on Lörzing 4566 and 4761 from near Bandar Baru, altitude 1250 meters, Sumatra, collected on December 30, 1916, and February 15, 1917, respectively. It is said to be related to V. vestita Wall., V. neglecta H. J. Lam, and V. glosso-calyx H. J. Lam, but differs in its medusa-like calyx. The last-mentioned of these names is doubtless an error for Subgenus Glossocalyx C. B. Clarke (Vitex gamosepala Griff.).

Citations: SUMATRA: Lörzing 4761 (Bz--24255--cotype, Bz--24256--cotype, Bz--24257--cotype, Bz--24258--cotype, N--cotype, N--photo of cotype, Z--photo of cotype); Van Steenis 9427 (Bz--24254).

VITEX MEGAPOTAMICA (Spreng.) Moldenke, *Am. Journ. Bot.* 38: 327. 1951.

Synonymy: *Besleria pentaphylla* Vell., *Fl. Flum.* 262 (1825), *Icon.* 6: pl. 83. 1827 [not *Vitex pentaphylla* Merr., 1909]. *Bigonia megapotamica* Spreng., *Syst. Veg.* 4 (2): 237. 1827. *Vitex montevidensis* Cham., *Linnaea* 7: 373. 1832. *Vitex montevidensis* ? var. *multinervis* Cham., *Linnaea* 7: 374. 1832. *Psilogyne viticifolia* A. DC., *Rev. Fam. Bignon.* 16. 1838. *Vitex taruma* Mart., *Syst. Mat. Med. Brasil.* 55. 1843. *Vitex multinervis* (Cham.) Schau. in A. DC., *Prodr.* 11: 688. 1847. *Vitex viticifolia* (A. DC.) B. L. Robinson, *Proc. Amer. Acad.* 51: 531. 1916. *Vitex montevidensis* Cham. & Schlecht. ex Engelhardt, *Abh. Hess. Geol. Landesanstalt Darmstadt* 7 (4): 69. 1922. *Psilogyne angustifolia* A. DC. ex Moldenke, *Prelim. Alph. List Invalid Names* 39, in syn. 1940.

Literature: Vell., *Fl. Flum.* 262. 1825; Vell., *Fl. Flum. Icon.* 6: pl. 83. 1827; Spreng., *Syst. Veg.* 4 (2): 237. 1827; Cham., *Linnaea* 7: 373--374. 1832; A. DC., *Rev. Fam. Bignon.* 16. 1838; Mart., *Syst. Mat. Med. Brasil.* 55. 1843; Schau. in A. DC., *Prodr.* 11: 688. 1847; Schau. in Mart., *Fl. Bras.* 9: 297. 1851; Bur. & K. Schum. in Mart., *Fl. Bras.* 8 (2): 289. 1897; Briq., *Arkiv Bot.* 2 (10): 22. 1904; E. D. Merr., *Philipp. Journ. Sci. Bot.* 4: 320. 1909; B. L. Robinson, *Proc. Amer. Acad.* 51: 531. 1916; Junell, *Symb. Bot. Upsal.* 4: 93. 1934; Molfino, *Trab. Inst. Bot. & Farm.* 53: 58 and 54: 79. 1935; Latzina, *Lilloa* 1: 189. 1937; Herter, *Revist. Sudam. Bot.* 4: 187. 1937; F. C. Hoehne, *Bot. & Agr. Bras. Sec.* 16: 243 & 357. 1937; Morton, *Contrib. U. S. Nat. Herb.* 26: 474. 1939; Herter, *Revist. Sudam. Bot.* 6: 97. 1939; Herter, *Beih. Bot. Centralbl.* 59: 275. 1939; Moldenke, *Alph. List Common Names* 6, 11, 14, & 29. 1939; Moldenke, *Geogr. Distrib. Avicenn.* 27--29 & 40. 1939; Moldenke, *Prelim. Alph. List Invalid Names* 39, 51, & 52. 1940; Hoehne, Kuhlmann, & Handro, *O Jard. Bot. S. Paulo* 578. 1941; *Inst. Bot. Observ. Ger. Contrib.* 3: 40 & 46, 4: 16, and 5: viii. 1942; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 1], 39, 41, 44, 75, & 103. 1942; Moldenke, *Alph. List Invalid Names* 39, 54, & 55. 1942; Moldenke, *Phytologia* 2: 120. 1944; Lombardo, *Fl. Arb. Urug.* 97 & 212. 1946; Irmão Augusto, *Fl. Rio Grande do Sul* 231 & 236. 1946; F. C. Hoehne, *Frut. Indig.* 77 & 79, pl. 32, fig. 1. 1946; Ragonese & Martinez Crovette, *Revist. Invest. Agric.* 1: 202. 1947; Lombardo, *Fl. Arb. & Arbores. Urug.* 187--188. 1947; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 95, 99, 100, 107, & 202. 1949; H. N. & A. L. Moldenke, *Anal. Inst. Biol. Mex.* 20: 15. 1949; Rambo, *Anais Bot. Herb. Barbosa Rod.* 3: 72 & 83. 1951; Stellfeld, *Trib. Farmac.* 19 (10): 170--171. 1951; Moldenke, *Am. Journ. Bot.* 38: 327. 1951; Reitz, *Sellowia* 6: 249 & 257. 1954; Rambo, *Sellowia* 6: 60, 67, & 153. 1954; Angely, *Gazeta do Povo, Curitiba*, 37, no. 10698, p. 5. Dec. 8, 1955.

Illustrations: Vell., *Fl. Flum. Icon.* 6: pl. 33. 1827; Ettingsh., *Blatt-Skel. Dikot.* 79, pl. 30, fig. 10. 1861; F. C. Hoehne, *Frut. Indig.* 77, pl. 32, fig. 1. 1946.

Very handsome shrub or middle-sized tree, to 25 m. tall, but often in hedgerows a shrub only 1.5 m. tall (to be continued).